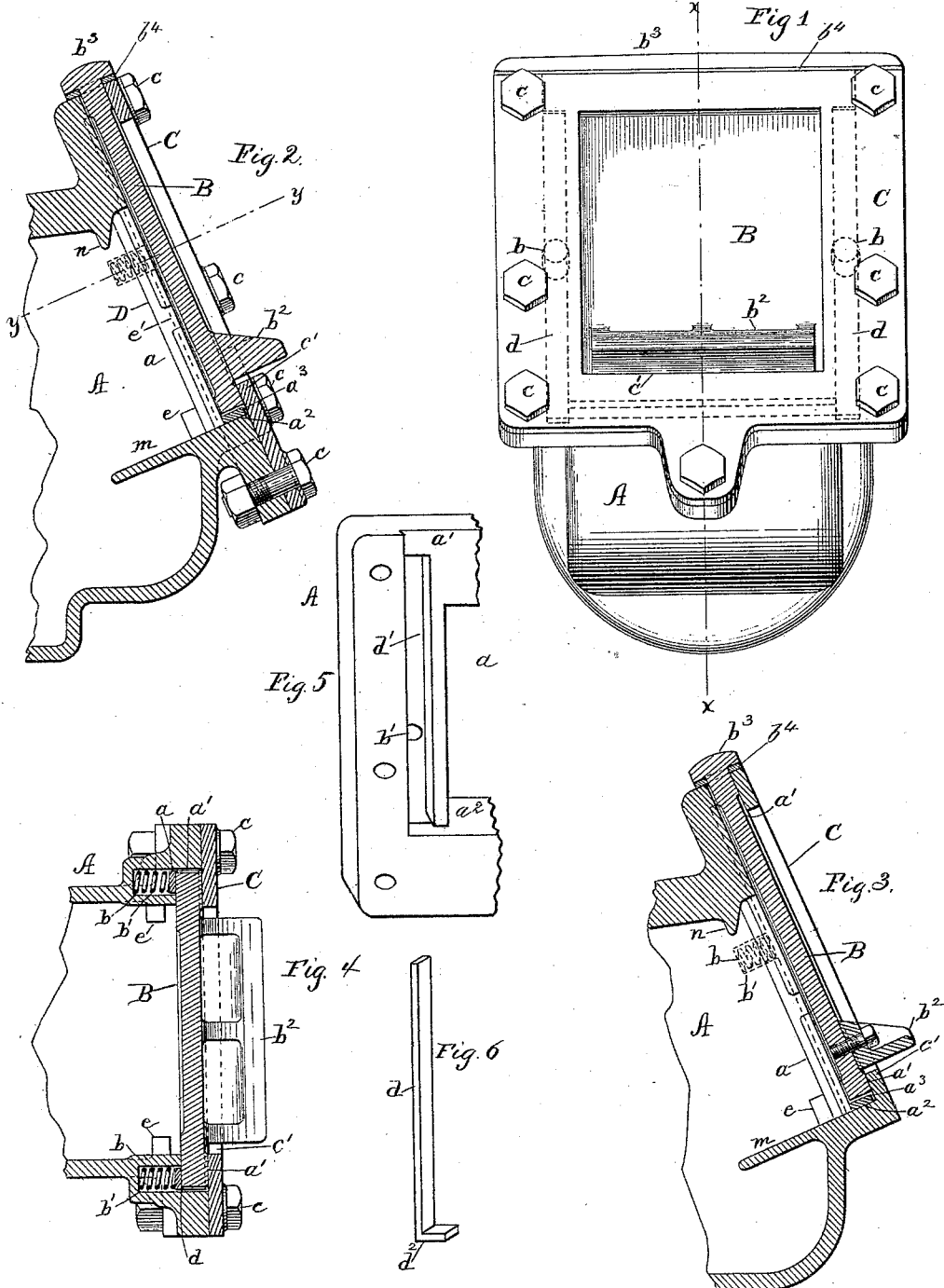


(No Model.)

W. O. DUNBAR.  
JOURNAL BOX FOR CAR AXLES.

No. 421,485.

Patented Feb. 18, 1890.



Witnesses:

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# UNITED STATES PATENT OFFICE.

WILLIAM OTIS DUNBAR, OF ALTOONA, PENNSYLVANIA.

## JOURNAL-BOX FOR CAR-AXLES.

SPECIFICATION forming part of Letters Patent No. 421,485, dated February 18, 1890.

Application filed July 17, 1889. Serial No. 317,762. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM OTIS DUNBAR, a citizen of the United States, and a resident of Altoona, county of Blair, and State of Pennsylvania, have invented certain new and useful Improvements in Journal-Boxes for Car-Axles, of which the following is a specification.

My invention, while relating generally to journal-boxes for car-axles, has reference more particularly to the lids used in connection therewith, whereby the orifices in their fronts or outer ends are closed and ingress to the boxes afforded for supplying lubricant and for other purposes as occasion may require. In journal-boxes of this class as ordinarily constructed the portions of the fronts or outer ends in which the orifices are formed are usually inclined backward from their lower edges, and the lids are applied to and against the outer surfaces thereof either by being bolted thereto or by means of wedge-shaped guides in which they are arranged, or by hinging them either at their upper edges or at their ends to the boxes and holding them against such surfaces by their own gravity or by spring-pressure applied to them. The lids as thus disposed under these arrangements, as well as their disposition under all other previous arrangements with which I am acquainted, while serving to close the orifice in the boxes and permitting of ingress to the same, have been found defective in practice principally because of the fact that the joints between the lids and the surfaces against which they bear are on the outsides of the boxes and the lubricant thrown upon the inner sides of the lids when the car is in motion or otherwise runs down such sides and escapes through the joints and is wasted.

The object of my invention is to obviate this defect and to provide a lid which, while tightly closing the orifice in the box and preventing the waste of the lubricant, shall permit of ready ingress thereto and at the same time be simple and cheap in construction and not liable to become misplaced or lost.

To this end my invention consists in certain peculiarities of construction whereby these results are accomplished, all as will hereinafter more fully appear.

Referring to the drawings which form a

part of this specification, Figure 1 is a front elevation of a journal-box with my invention applied thereto; Fig. 2, a vertical longitudinal section, taken in the plane  $x x$  of Fig. 1, of the front portion of a journal-box with my invention applied in connection therewith; Fig. 3, a similar view, taken in the same plane, of a slightly-modified construction; Fig. 4, a transverse section of the box shown in Fig. 2, taken in the plane  $y y$  in that figure; Fig. 5, a detail elevation of a portion of a journal-box constructed in accordance with my invention, the front of the guideway and the lid being omitted to more clearly illustrate certain features thereof; and Fig. 6, an isometric projection of one of the strips which co-operate with the springs to hold the lid pressed outward at all times toward and against the front of the guideway and insure a tight joint being formed between them.

In all the figures like letters are employed to designate corresponding parts.

A indicates a journal-box having the usual orifice  $a$  in its front or outer end, through which ingress is permitted for supplying lubricant and for other purposes. In the application of my invention any of the ordinary and well-known forms of journal-boxes may be employed. The design, however, which I have selected for the exemplification of my invention is that illustrated in United States Letters Patent No. 397,901, granted to me February 19, 1889, to which reference may be had.

B indicates the lid, by means of which the orifice  $a$  in the journal-box is closed. This lid instead of being secured to the outside of the box, as heretofore, is fitted to slide in a suitable guideway  $a'$ , formed as a pocket in the outer end thereof. As shown in the drawings, this guideway is preferably made of a width somewhat greater than the width of the orifice  $a$  and extends from the upper outer edge of the box downward across such orifice and terminates at the under side of the same in a ledge or close bottom  $a^2$ , being preferably formed with its sides parallel or non-wedge shaped throughout. The outer edge of this ledge or bottom in the preferred form of construction is made somewhat higher than its inner edge to assist in returning to the box the lubricant thrown upon it, and when used

in connection with a box employing a deflector *m* the inner edge of such ledge will be disposed in the same plane as the upper surface thereof.

5 In the construction of the guideway *a'* the front *C* thereof may be cast integrally with the same, as shown in Fig. 3, or be made in a separate piece and secured in place by screws or bolts *c*, as illustrated in Figs. 1, 2, and 4.  
 10 This latter construction, however, I prefer in practice, as provision is thereby made for truing up the surfaces and insuring a more perfect joint between the lid and the parts against which it bears; but however constructed it is provided with an orifice through  
 15 its center to correspond with the orifice *a* in the front of the box, of which it forms a part, and also with a lip *c'* extending upward from the under side of its orifice some distance  
 20 above the outer edge of the ledge *a*<sup>2</sup>, as shown. The lid when arranged in the guideway may in some instances rest upon the ledge *a*<sup>2</sup>. I prefer, however, to support it by means of a flange *b*<sup>3</sup>, projecting from its upper end, in  
 25 which case the bottom of the lid will be held a short distance above the ledge, but still project down below the upper edge of the lip *c'*. When the flange *b*<sup>3</sup> is employed, it will preferably project outward from the upper end of  
 30 the lid in all directions around the same and will rest upon the upper surface of the box adjacent to the guideway, thereby serving not only as a support for the lid, but also as a means for preventing dust and other foreign  
 35 substances entering the guideway at that point. In most instances the joint between the flange and the surfaces with which it co-operates will be sufficiently tight for all practical purposes; but, if desired, a packing-  
 40 strip *b*<sup>4</sup> may be interposed between them, as may also be a packing-strip *a*<sup>8</sup> inserted between the lower end of the lid and the ledge, if preferred. As thus disposed, the joint between the lid and the box, instead of being  
 45 formed between the inner side of the former and the outer end of the latter, as heretofore, is formed between the outer side of the lid and the inner side of the front of the guideway, which portion of the guideway in reality  
 50 forms the front of the box, and, in order to insure the proper degree of tightness in the joint between these parts, the lid is preferably paneled on its front and back, or at least on its front, leaving a projecting bearing-surface  
 55 around its outer edge for co-operation with the inner surface of the front *C*, springs *b* being employed, which, seated in cavities *b'*, formed in the outer surface of the box, serve to hold the lid pressed outward against the  
 60 front, as shown. These springs, instead of acting directly against the inner side of the lid, bear at their outer ends against strips *d*, seated in suitable channels or recesses *d'*, also formed in the outer face of the box,  
 65 whereby a more uniform pressure along the entire length of the lid is insured, and both the protrusion of the spring across the guide-

way and their escape from their cavities when the lid is raised above them avoided. To prevent these strips from being pressed too  
 70 far outward when the lid is raised, their lower ends *d*<sup>2</sup> are bent at an angle to their bodies, as shown more clearly in Fig. 6, so that when arranged in their channels or recesses their outer movements are limited by their lower  
 75 bent ends striking the inner side of the plate or keeper *C*.

In order to provide means for raising the lid when desired, as well as for preventing it from being raised entirely out of the guideway *a'* and lost, a handle or catch-piece *b*<sup>2</sup> is  
 80 secured to its outer side and works through the orifice formed in the front of the guideway *a'*. When used in connection with a guideway having the front made in a separate  
 85 piece and secured in place by means of screws or bolts, as shown in Figs. 1, 2, 4, and 5, this handle or catch-piece may be made integral with the lid; but when used in connection with a guideway having a front that  
 90 is cast integrally therewith, as shown, for instance, in Fig. 3, it will be made in a separate piece and secured to the lid by screws or otherwise, as may be preferred. In whichever of  
 95 the two ways constructed, however, it will project sufficiently far through the orifice to permit of being readily engaged by the hand, and at the same time serve as a stop to limit the upward movement of the lid by striking  
 100 the top of the orifice in the front of the guideway when the lid is raised to a certain height. With the lid as thus constructed and arranged I sometimes find it convenient to employ a plate *D*, which rests at its lower end  
 105 upon the deflector *m* or inner edge of the ledge *a*<sup>2</sup> in rear of the lid, and is held in place by the conjoint action of suitable lugs *e*, projecting inward from the sides of the box, and the deflector *n*, depending from the upper side thereof. This plate will be made of a width  
 110 sufficiently great to extend across the orifice *a*, or nearly so, and will preferably be provided with a handle or catch-piece *e'* on its outer side, by means of which it may be removed from the box when required, the object  
 115 and purpose of this plate being to intercept the lubricant when thrown upward in the box and prevent it, as far as possible, from reaching the lid. In some instances I find it desirable to provide the plate with an  
 120 orifice near its center, through which the lubricant may be supplied when the lid is raised; but in my preferred form of construction this orifice will be omitted, the plate being merely tilted forward or removed wholly from  
 125 its seat when that operation is performed.

From the foregoing it will be seen that I provide means for closing the orifice in the front or outer end of the journal-box which is not only simple in construction and efficient  
 130 in operation, but which obviates to a great extent many of the defects experienced by the use of journal-boxes as heretofore constructed, the lip on the front of the guide-

way extending up above the ledge over which the lid is supported and the formation of the joint between the outside of the lid and the inner side of the front of the guideway serving to prevent the escape of the lubricant, while the arrangement of the handle or catch-piece on the lid within the orifice in such front not only affording a convenient means for manipulating the lid, but also a stop to prevent its being raised entirely from its guideway and becoming lost.

In the above I have described the best means contemplated by me for carrying my invention into practice; but I wish it distinctly understood that I do not limit myself strictly thereto, as it is obvious that I may modify the same in various ways without departing from the spirit thereof.

Having thus described my invention and one way in which it is or may be carried into effect, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. A journal-box provided with an orifice in its outer end, a guideway for reception of a lid arranged in relation to such orifice, and with cavities in said guideway for reception of springs, substantially as described.

2. A journal-box provided with an orifice in its outer end, a guideway for reception of a lid arranged in relation to such orifice, spring-cavities  $b'$ , and channels or recesses  $d'$ , substantially as described.

3. The combination, with a journal-box provided with an orifice and a guideway in its front or outer end, and with an orifice in the front of said guideway, of a lid fitted to such guideway and provided with a handle or catch-piece projecting through the last-mentioned orifice and with a flange projecting outward from its upper end in all directions around the same to serve not only as a support for the lid, but also as a guard to close the guideway at the top to prevent ingress of dirt and other foreign substances, substantially as described.

4. The combination, with a journal-box provided with an orifice in its outer end and a guideway arranged in relation to such orifice, of a lid fitted to said guideway and provided with a flange at its upper end, and an interposed packing-strip, substantially as described.

5. The combination, with a journal-box provided in its front or outer end with an orifice, and with a non-wedge or parallel-sided guideway constructed with an orifice in its front and with a lip extending upward from the lower outer edge of its closed bottom, of a lid arranged in said guideway and provided with a flange projecting outward from its upper end in all directions around the same to close the upper end of the guideway to the admission of dirt and other foreign substances, and devices separable from the box and lid

for holding said lid pressed outward against the continuous surfaces formed by the inner faces of the lip and the adjacent sides of the front of the guideway to form a tight joint between the outer side of the lid and such surfaces, substantially as described.

6. The combination, with a journal-box provided with an opening in its outer end and with a guideway disposed in relation thereto, of a lid arranged in such guideway and provided with a flange projecting outward from its upper ends in all directions around the same to close the upper end of the guideway to the admission of dirt and other foreign substances, and springs for holding the lid pressed outward against the front of the guideway to form a tight joint between them, substantially as described.

7. The combination, with a journal-box provided with an orifice and a guideway in its outer end, and a lid arranged in said guideway, of springs for acting against the lid to hold it pressed outward against the front of said guideway, substantially as described.

8. The combination, with a journal-box provided with an orifice, a guideway and cavities  $b'$  in its outer end, and a lid fitted to said guideway, of springs arranged in such cavities, substantially as described.

9. The combination, with a journal-box provided with an orifice, a guideway, cavities  $b'$  and channels or recesses  $d'$  in its outer end, and a lid fitted to the guideway, of the springs  $b$  and strips  $d$ , substantially as described.

10. The combination, with a journal-box provided with a guideway, cavities  $b'$  and channels or recesses  $d'$  in its outer end, and a lid arranged in such guideway, of springs  $b$  and pieces  $d$ , having their lower ends bent at an angle to their bodies, substantially as described.

11. The combination, with a journal-box having an orifice and a guideway in its outer end and with an orifice in the front of said guideway, of a lid fitted to such guideway and provided with a handle or catch-piece projecting through the last-mentioned orifice, substantially as described.

12. The combination, with a journal-box provided with an orifice and a guideway in its outer end, and a lid fitted to slide in said guideway, of a plate arranged in such orifice in rear of the lid and means for holding it therein, substantially as described.

13. The combination, with a journal-box provided with an orifice having suitable projections therein, of a plate  $D$ , resting against such projections and provided with a handle or catch-piece, by means of which it may be removed and replaced, substantially as described.

14. A journal-box provided in its outer end with an orifice, a guideway for reception of a lid arranged in relation to such orifice, and

channels or recesses  $d'$ , substantially as described.

15. The combination, with a journal-box provided in its outer end with an orifice, a  
5 guideway, and channels or recesses  $d'$ , and a lid fitted to slide in the guideway, of pieces  $d$ , arranged in said channels or recesses, substantially as described.

In testimony whereof I have hereunto set my hand this 12th day of July, 1889.

WILLIAM OTIS DUNBAR.

Witnesses:

S. NOWELL, Jr.,

G. H. ASHMAN.