

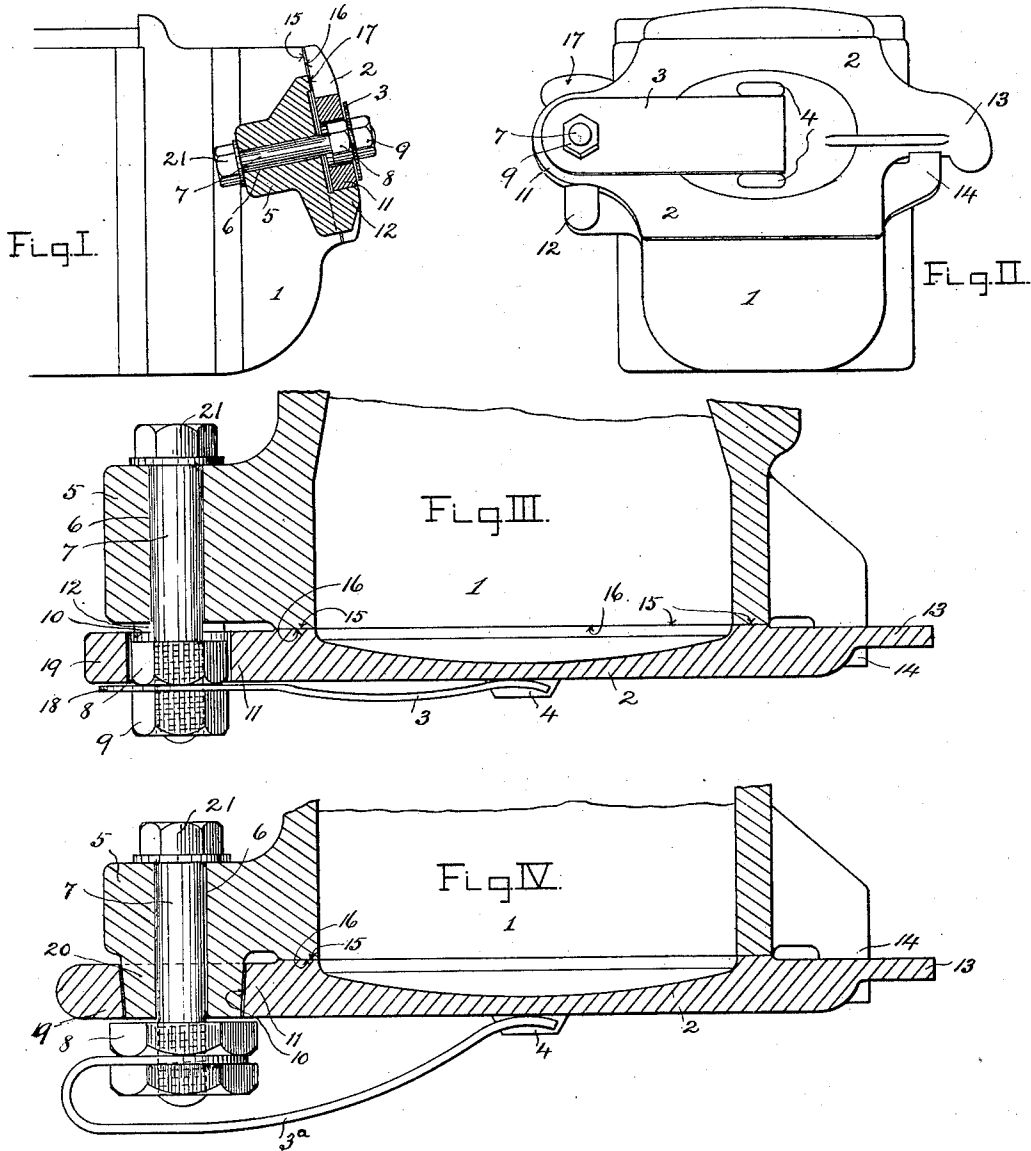
No. 697,040.

Patented Apr. 8, 1902.

T. H. SYMINGTON.
JOURNAL BOX.

(Application filed Mar. 5, 1901.)

(No Model.)



Witnesses

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UNITED STATES PATENT OFFICE.

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JOURNAL-BOX.

SPECIFICATION forming part of Letters Patent No. 697,040, dated April 8, 1902.

Application filed March 5, 1901. Serial No. 49,954. (No model.)

To all whom it may concern:

Be it known that I, THOMAS H. SYMINGTON, a citizen of the United States, residing at Wilmington, in the county of New Hanover and State of North Carolina, have invented a new and useful Improvement in Journal-Boxes, of which the following is a specification.

My invention relates to journal-boxes, and especially to journal-boxes for railroad-cars; and the object of my invention is to provide an improved form of lid and an improved connection between the lid and the box.

Many journal-box lids are pivoted at one side and are kept in place against the faces of the boxes by means of springs. Upon the manner in which a lid is pivoted and upon the manner in which its spring is fitted depends very largely the efficiency of the fit made between the lid and the box-face, and that this fit should be as perfect as possible is well known. The spring is often arranged to bear against the center of the lid; but it should be attached at a point near the pivot of the lid and in such a manner that it can turn with the lid when the latter is turned on its pivot. I have found in practice that to insure a satisfactory fit under all working conditions between the lid and the box the lid and its spring should be pivoted independently of one another, that the spring should only bear upon the center of the lid, that the spring should be rigidly attached to a pivot and not merely pivoted upon a fixed pin, and that the lid should bear only upon the actual joint or face around the opening in the end of the box.

The object of my invention is to provide a journal-box constructed in such a manner as to meet these conditions and at the same time economically.

In the drawings which accompany and form a part of this specification, and in which like numerals refer to like parts in the different views, Figure I is a broken view showing the outer end of a journal-box in side elevation and a section being taken through the point at which the box-lid is pivoted. Fig. II is a front elevation of a journal-box with the lid in position and closed. Fig. III is a horizontal section through the outer end of the journal-box and the lid. Fig. IV is a horizontal section through the outer end of a jour-

nal-box and its lid and showing a modified construction of pivot for the latter.

In Figs. I, II, and III, 1 is the outer end of the journal-box. 2 is the lid. 3 is the spring bearing upon the center of the lid and its bearing end kept in place by the lugs 4 4. On one side of the box is cast a lug 5, in which a hole 6 is cored. In this hole a bolt 7 engages loosely, so that it is free to turn therein. The bolt 7 is threaded on its outer end, and a nut 8 is run down hard to the end of the thread. The spring 3, which is provided with a hole through which the bolt end may pass, is passed over the end of the bolt, and a second nut 9 is screwed home, so as to jam the spring between itself and the nut 8. The part of the spring which is held between the two nuts is preferably given a slight curvature, so that when the outer nut 9 is screwed home the said part of the spring will act as a spring-washer to lock the said outer nut 9.

The lid 2 is provided at its pivoted end with a hole 10 large enough to pass easily over the nut 8. The hole 10 is located in an ear 11, the lower edge of which rests upon and is supported by a lug 12, which is preferably cast in one with the box and lug 5. The object of the lug 12 is to provide a solid support for the pivoted end of the lid, and so take the weight of the latter off the nut 8 and bolt 7, for it should be observed that though the lid is actually pivoted on the same center as that upon which the spring is pivoted no part of the weight of the lid is carried by the pivot of the spring. The opposite end of the lid is provided with an ear 13, which rests upon the projecting lug 14, which lug is preferably integral with the box. The weight of the lid is therefore supported by the lugs 12 and 14. The lid 2 is also provided with a machined face 15, which face bears upon a similar machined face 16, with which the end of the box is provided, and which face surrounds the opening in the end of the box. It will now be seen that the only part of the box against which the lid bears is the face 16, and the only part of the spring which bears upon the lid is its free end. A central pressure is therefore exerted upon the lid, and this pressure is uniformly distributed around the joint formed between the faces 15 and 16. The weight of the lid being supported by the lugs

12 and 14, there is no necessity for a ledge along the bottom of the opening in the box end to carry the weight of the lid. Such ledges are objectionable, as, if machined, they are expensive and as they collect dust to such an extent as to prevent the lids coming to a fair seat.

To open the lid, its free end is thrown upward, and if no provision be made against it the pressure of the spring will when the lid is open—that is, standing vertically—cause the lid to cant. Then when it was desired to close the lid again it would be found that a considerable amount of force was necessary to get the lid back to its proper position. Besides, a severe strain would be thrown by the ear 11 upon the heel 18 of the spring and upon the bolt. To prevent this, I extend the face 16 of the box above the lug 5, the said extension 17 also forming a part of the lug for the sake of additional strength, Figs. I and II. When the lid is opened, that part of the face 15 of the lid which is nearest to the pivot will bear against the extended face 17, and so keep the lid-face 15 in the same plane as the box-face 16; but since the spring bears upon the lid at a point above the extension-face 17 and outside the box-face 16 there is a possibility of the lid canting slightly. This, however, is limited by the heel 18 of the spring, against which the heel 19 of the lid would bear.

It will now be seen that I have a pivoted journal-box lid bearing only on its joint, that this joint is kept tight by a central pressure exerted by a spring not attached in any manner to the lid, that the spring is rigidly secured to a pivot, that the said spring is free to turn with the lid, that the said spring will remain operative at all times, and that its relation to the lid will remain unchanged no matter what the position of the latter may be.

In the form of my invention shown in Fig. IV it will be noticed that the spring 3^a is U-shaped and secured at one end only, but that both ends of the spring are turned in the same direction. One end is short and the other long. The spring is attached to the box by the short end, and the long end is turned over the point of support of the short end and bears at or about the center of the lid of the box. The springs in use in other boxes, while they exert sufficient pressure on the lid when new, have so short an extent of motion due to elasticity that if a very small amount of wear should occur in any of the bearings the long end of the lever would yield so much as to destroy the working power of the spring. This I prevent by making the spring long, turning it over its point of support, and giving it a large amount of motion for the free end.

The spring instead of being shaped as shown in Fig. IV may have the form shown in Fig. III.

Fig. IV shows another and equally simple manner in which the weight of the lid at its pivoted end may be supported. The sup-

porting-lug 12, Figs. I and II, is dispensed with, and the lug 5 is reduced to form a boss 20. The ear 11 of the lid is provided with a hole 10 large enough to take the boss 20 loosely, and the boss thus becomes a pivot upon which the lid may turn and by which a part of the weight of the lid may be supported, the rest of the said weight being carried, as before, by the lug 14. The boss 20 is made conical in shape to facilitate casting and the fitting of the lid. The nut 8 is in this case made of larger diameter than in the first case to present a surface extending beyond the face of the end of the boss 20 against which the heel 19 of the lid may bear when the lid is open.

I do not confine myself to the details of construction shown and described, for it is manifest that some of them may be changed without departing from the general principle. For instance, the nut 8 may be replaced by a solid collar integral with the bolt 7, the head 21 of the bolt being at the same time replaced by a nut secured against turning in any suitable manner. Also it is not necessary that the nut 8 should lie within the hole 10 in the lid, Fig. III, for by simply lengthening the bolt 7 the said nut can be brought outside the lid, if desired, the hole 10 in the lid being reduced to such a size as will easily admit the bolt.

Having now described my invention, what I claim, and desire to protect by Letters Patent of the United States, is—

1. The combination with a journal-box of a lid loosely pivoted at one end thereto, a bolt pivoted in the box, and a spring rigidly secured by one end to the end of the bolt and bearing at its free end upon the lid to press it upon its seat on the box, the lid, spring, and bolt turning together when the lid is opened.

2. The combination with a journal-box of a lid loosely pivoted at one end thereto, a bolt pivoted in the box, and a spring rigidly secured by one end to the end of the bolt and bearing at its free end upon the lid to press it upon its seat on the box, the weight of the lid being supported by projections on the box and independently of the bolt, the lid, spring and bolt turning together when the lid is opened.

3. The combination with a journal-box of a bolt pivoted in the box, a spring secured at one end to the end of the bolt, and a lid located between the spring and the box and pivoted about the same center as the spring, the spring having but one free end which bears upon the center of the lid to press it upon its seat upon the box, the lid, bolt and spring being arranged to turn together and about the same center when the lid is opened.

4. The combination in a journal-box of a lid supported at two points one on each side of the opening in the box, and said lid pivoted at one side of the box, a bolt pivoted in a lug on the same side of the box, and a spring rigidly secured to the end of the bolt beyond the outer surface of the lid and bearing at its free

end upon the lid to press it upon its seat on the box, the lid, bolt and spring turning together when the lid is opened.

5 5. The combination with a journal-box of a lid the weight of which is supported at two points one on each side of the opening in the box, a bolt pivoted in a lug on the side of the box, and a spring rigidly secured by one end to the end of the bolt beyond the outer surface of the lid and bearing at its free end upon the lid to press it upon its seat on the box, the said lid being free to turn with the spring about the same center, and lateral displacement of the lid being prevented by the pivot of the spring.

15 6. The combination with a journal-box of a bolt pivoted at one side of the opening in the face thereof, a spring rigidly secured by one end to the end of the bolt, a lid bearing upon a seat surrounding the opening in the box and arranged to turn with the spring about the same center, the free end of the said spring bearing upon the center of the lid to press it upon the seat on the box and being so connected with the lid that when the lid is opened the lid and spring will turn together.

20 7. The combination with a journal-box of a lid loosely pivoted at one end thereto, a bolt pivoted in the box, and a spring rigidly secured by one end to the end of the bolt and bearing at its free end upon the lid to press it upon its seat on the box, the said free end of the spring being so connected with the lid that when the lid is opened the lid and spring will turn together.

25 8. The combination with a journal-box of a bolt pivoted at one side of the opening in the face thereof, a spring rigidly secured by one end to the end of the bolt beyond the plane of the face of the box, a lid bearing upon a seat surrounding the opening in the box and arranged to turn with the spring about the same center, the free end of the said spring bearing upon the center of the lid to press it

upon the seat on the box and being so connected with the lid that when the lid is opened the lid and spring will turn together, and the box being provided with an extension-seat to support the lid when it is open. 45

9. The combination in a journal-box of a lid therefor, and an independent U-shaped spring, having both legs turned in the same direction, one leg being longer than the other, the short leg attached to the box, and the free leg turned over the point of support of the attached leg, and bearing on the lid only at or about its center. 50 55

10. In a journal-box, the combination of a box having an opening on one side provided with a seat for a lid all around the opening, a lid pivoted to the box and supported by the box in a plane parallel with the plane of the seat on one side of its pivot only, that is to say, by the seat, the lid being opened by revolving around the pivot in or about the same plane as the seat, and a U-shaped spring having a short and a long leg supported by the box by its short leg only, having both legs turned in the same direction and having the long leg turned over the point of support, or attachment, of the short leg and resting upon the lid, at or about its center only, substantially as described. 60 65 70

11. The combination with a journal-box having an opening on one side, with a seat all around the opening, of a lid pivoted to the box on a pivot perpendicular to the plane of the seat, said lid having a bearing on the seat and supported on the box in the plane of the seat, on the seat side of the pivot only. 75 80

Signed at New York, in the county of New York and State of New York, this 25th day of February, A. D. 1901.

THOMAS H. SYMINGTON.

Witnesses:

JOHN HARRISON,
FREDERIC MONNOT.