Sept. 17, 1929. J. L. MOHUN 1,728,433

JOURNAL BOX

Filed July 21, 1924

Fig. 1.

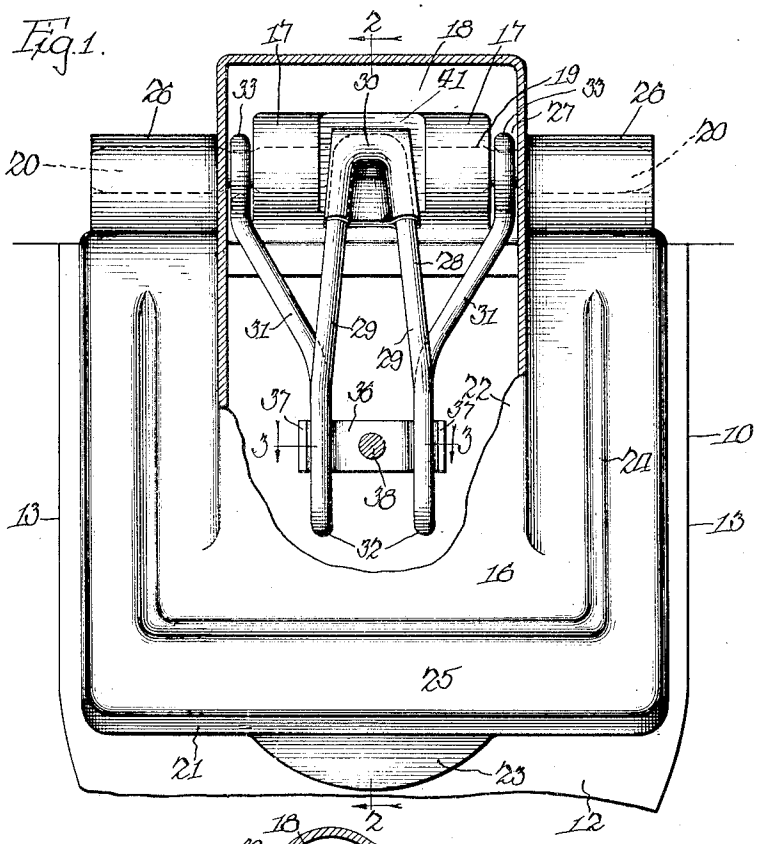


Fig. 2.

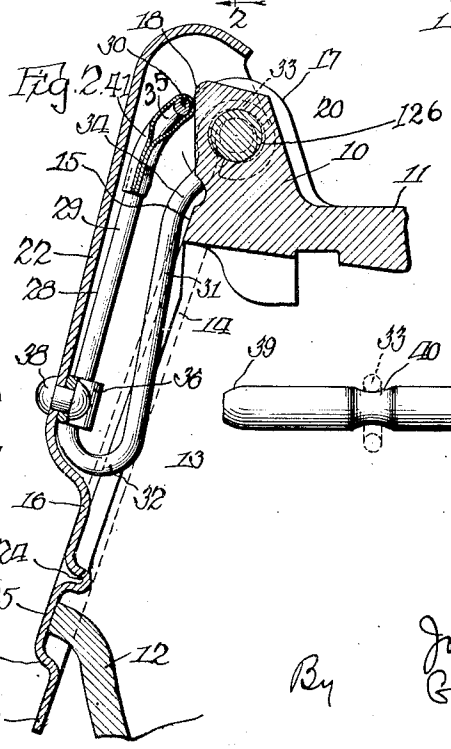


Fig. 3.

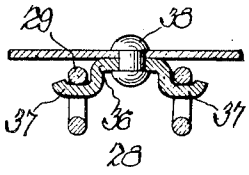
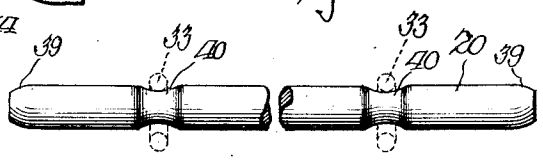


Fig. 4.



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Patented Sept. 17, 1929 1,728,433

UNITED STATES PATENT OFFICE

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JOURNAL BOX

Application filed July 21, 1924. Serial No. 727,111.

This invention relates to improvements in journal boxes.

In railroad practice, improper lubrication of the bearing surfaces of the journals of railway car trucks, resulting in so-called "hot-boxes", is a frequent source of trouble. In one of the most commonly used types of journal boxes, this lack of proper lubrication is due largely to the lubricant leaking out of the box and foreign matter entering the box between the lid and the box proper, on account of the lid not being properly seated. In journal boxes of the type referred to, the box is provided with a lid or cover hinged along its top edge and a spring which is fixedly attached approximately at the center of the lid, the spring having its free end bearing on and working over a spring lug at the top of the box so as to hold the lid in either closed or fully opened position. In this arrangement, it is evident that a fulcrum is thus provided for the free end of the spring and a fulcrum for the lower edge of the lid so that the tension of the spring tends to lift the upper part of the lid away from its seat on the journal box proper. As is well known, journal boxes for car trucks are necessarily more or less of rough construction, resulting in inaccuracies in the location of the hinge lugs with respect to the lid bearing faces on the box As a result it very frequently happens that the journal box lid is not held tightly against the box proper, a space being thus left between the upper portion of the lid and the box and spaces between the edges of the lid of the box.

One object of the invention is to provide a simple and efficient spring actuated lid for journal boxes, especially adapted for railway cars, wherein is obtained a true and full seating of the lid on the journal box face at every point thereof.

A more specific object of the invention is to provide an arrangement of the character indicated, wherein the devices are adaptable to journal boxes now commonly used without any departure therefrom in the details of construction, and wherein such variations as are commonly permitted in commercial practice will be automatically taken care of and the lid assured of a full seating around all of the edges of the journal box.

A further object of the invention is to provide a device of the character indicated, adapted especially for use in connection with refrigerator cars, including spring means of novel design, for either pulling the lid closed or holding the lid open, and wherein the spring is disposed on the inner side of the lid and the lid is hooded to accommodate the spring and house the same so as to effectively protect the spring from the elements and from moisture dripping from the car.

Another object of the invention is to provide a journal box having a hinged lid which is spring pressed, wherein simple and efficient means is provided for retaining the pin in assembled relation with the hinge members of the lid and box.

Still another object of the invention is to provide a journal box proper and lid or cover hinged thereto, spring means so associated with the lid as to hold it in either fully closed or fully opened position, wherein the spring cooperates with the pin to maintain the latter in assembled position with the hinged portions of the lid and box.

Still another object of the invention is to provide an arrangement which follows the lines of usual construction, which is both low in first cost and low in cost of maintenance, wherein a novel spring, together with a hinge pin in combination with a lid may be substituted for the lids, springs, and hinge pins now in service and applied to the journal boxes proper without modification of the latter, the invention being equally adaptable to new journal boxes.

Other objects and advantages of the invention will more fully and clearly appear from the description and claims hereinafter following.

In the drawings forming a part of this specification, Figure 1 is an end elevational view, partly in section, of a journal box showing my improvements in connection therewith. Figure 2 is a longitudinal, vertical, sectional view, partly broken away, corresponding substantially to the line 2—2 of Figure 1. Figure 3 is a detail, sectional

view corresponding substantially to the line 3—3 of Figure 1. And Figure 4 is a detail, side elevational view of the hinge pin used in connection with my improved construction.

In said drawings, 10 denotes a portion of the usual journal box of a railway car, the same having a top wall 11, a bottom wall 12 and side walls 13—13, defining a mouth as indicated at 14. The mouth 14 is of rectangular outline and the edges of the walls 11, 12 and 13 defining the same are sloped downwardly and outwardly and lie in a common plane, thus providing a flat continuous face 15 to form a seat for the journal box lid 16. The top wall 11 is provided with a lug comprising rounded outer sections 17—17 and an intermediate section 18, forming a spring bearing lug, as clearly shown in Figures 1 and 2. The lug 17—18 is provided with a hinge pin receiving opening 19, adapted to receive the hinge pin or bolt 20.

The journal box lid, which is designated generally by the reference character 16, is of rectangular outline and preferably formed of sheet metal. Said lid 16 around the two side edges and the bottom edge is provided with an angularly disposed flange 21 which overhangs the edges of the walls 12 and 13 of the box proper and at its upper edge adjacent the opposite sides thereof has flat sections which seat against the edge of the top wall 10. The central portion of the lid is outwardly offset as indicated at 22, providing a hood overhanging the hinged end of the lid proper. At the lower edge, the lid 16 is provided with a finger piece 23 by which the cover may be opened either manually or by the usual hook employed for that purpose. Parallel to the side and bottom edges of the lid and spaced inwardly from said edges, and just within the corresponding edges of the walls 12 and 13, the lid is provided with a continuous corrugation 24, which is extended inwardly from the main plane of the lid, as best shown in Figure 2. A flat section 25 is thus provided between the continuous corrugation 24 and the three marginal edges of the lid, which flat section is adapted to seat on the flat bearing surface 15 provided around the mouth of the box. At its upper edge, the lid is provided with a pair of integral, spaced, curled hinge lugs 26 adapted to align with the hinge lug 17—18 to receive the hinge pin or bolt 20 therewithin. The hinge pin receiving openings 126 of the lugs 26 are laterally elongated as clearly shown in Figure 2 to permit the automatic adjustment of the upper portion of the lid toward the box proper. As clearly shown in Figure 1, the lid hinge lugs 26 are slightly spaced from the box hinge lug 17—18 as indicated at 27 to accommodate the ends of the spring 28, as hereinbefore described.

The lid 16 is normally held in closed position by the spring 28, so mounted that the entire force is positively applied to the center of the lid. The spring 28 is preferably made of steel wire of round cross-section and has a pair of central arms 29—29, converged upwardly and connected by a transverse section 30, and a pair of upwardly diverging side arms 31. Each of the arms 29 and 31 is connected by an integral loop portion 32. The plane of said loop is at right angles to the plane of the lid. The free ends of the arms 31 are curled to form eyes 33, which are accommodated in the spaces 27 between the lugs 26 and 17—18 and are adapted to receive the hinge pin or bolt 20. Below the eyes 33, the arms 31 are offset toward each other and thence extend parallel to each other as clearly shown in Figure 1. It will also be evident that the lower ends of the arms 29 are disposed in parallel relation to each other. Adjacent the eyes 33, the arms 31 are bowed outwardly from the plane of the surface 15 of the journal box as indicated at 34, thereby providing ample clearance for the spring when the lid is closed. It will also be noted that the loop defined by the upper ends of the arms 29 and the section 30 is bent inwardly as indicated at 35 and bears on the outer face of the section 18 of the journal box lug. The spring 28 is anchored to the central portion of the lid 16 by a plate 36 offset at its opposite ends to provide flanges 37, said plate being secured to the lid on the inner side thereof by a rivet 38 or any other suitable securing device. The flanges 37 form bearing portions for the spaced lower ends of the sections 29 of the spring, a slight clearance being left between the inner surfaces of the lid and the spring to permit sliding movement of the latter with reference to the lid.

To prevent excessive wear of the bearing surface of the section 17 of the journal box lug by the end of the spring 28, sliding thereover, I preferably cap the free end of the spring with a clip 41 of sheet metal, the clip being in the form of a U-shaped plate embracing the free end of the spring and crimped inwardly between the arms 29 of the spring to retain it in position. As will be evident, the clip 41 provides an enlarged bearing surface, thereby effectively preventing scoring of and reducing the wear on the journal box lug faces.

From the preceding description, it will be seen that the loop section 30 of the spring is offset from the eye ends 33 of the spring in such a manner that the lower end of the arms 29 will always automatically have an inwardly pulling action on the lid due to the fact that the outward pressure on the spring is taken entirely on the hinge bolt and not by the lid. In this construction therefore there is absolutely no tendency to lift the lid or any part of it from the seat on the journal box proper. On the contrary, the pressure is uniformly distributed through all the contacting por-

tions of the lid and box, inasmuch as the spring pressure is applied to the center of the lid. Automatic adjustment of the upper end of the lid toward the box proper is permitted, due to the elongated hinge pin opening of the lid.

The pin 20 by which the lid is hinged to the box, is provided with rounded ends 39 to facilitate insertion thereof within the hinge pin receiving openings of the hinge lugs 26 and 17—18. As clearly shown in Figure 4, the hinge pin 20 is provided with a pair of peripheral, annular grooves or depressions 40 between the ends thereof, said grooves being spaced apart so as to register with the openings 27 when the parts are assembled and form seats for the eye portions 33 of the spring 28. As will be evident, the eye portions 33 of the spring will snap into the grooves or depressions 40 to maintain the hinge pin against endwise movement and hold it in assembled relation with the hinge lugs.

Very simple and efficient means is thus provided for hinging the parts and holding them in assembled relation. As will be evident, the hinge pin may be readily removed by driving the same out of the hinge lugs, due to the camming action of the walls of the annular grooves 40.

I have herein shown and described what I now consider the preferred manner of carrying out my invention, but the same is merely illustrative and I contemplate all changes and modifications that come within the scope of the claims appended hereto.

I claim:

1. In a journal box, the combination with a box proper; of a lid for closing said box; a pivot pin for hinging said lid to the box; a spring means for yieldingly holding the lid in closed position; and interlocking yieldable coacting means on said pin and spring means for retaining said pin in position.

2. In a journal box, the combination with the box proper; of a lid for closing said box; a spring for yieldingly holding said lid in closed position; and a pivot pin for hinging said lid and anchoring said spring to the box, said pin having means thereon interengaging with yieldable portion of the spring for retaining the pin in assembled relation with said lid and box.

3. In a journal box, the combination with a box proper, having a hinge pin receiving means thereon; of a lid for closing said box, said lid also being provided with hinge pin receiving means; spring means cooperating with said lid to force the same to closed position; and a hinge pin for hinging the lid to the box, said pin and spring means having detachable yieldably interlocked portions for maintaining said pin assembled with the lid and box, and holding the pin against endwise movement.

4. In a journal box, the combination with a box proper having hinge pin receiving means thereon; of a lid for closing said box; said lid also having hinge pin receiving means; a spring for forcing said lid to closed position, said spring having hinge pin receiving eyes forming a portion of said spring; and a pin for hinging the lid to the box, said pin engaging the eyes to anchor the spring to the box proper, the eye engaging portions of said pin being provided with shoulders adapted to prevent displacement of said pin.

5. In a journal box, the combination with a box proper having a hinge pin receiving means thereon; of a lid for closing said box, said lid having hinge pin receiving means; of a pin for hinging said lid to the box, said pin being provided with indentations; and spring means for forcing the lid to closed position, said spring having sections thereof engaging with said indentations to retain the pin in assembled relation with the lid and box.

6. As an article of manufacture, a hinge pin for journal box lids, said pin being provided with a pair of spaced, peripheral, annular grooves between the ends thereof, adapted for the reception of spaced spring eyes the extremities of said pin being reduced in diameter.

7. In a journal box structure, a pintle having an annular recess, a lid pivoted on said pintle, a spring carried by said lid and a member engaged in the recess of the pintle and serving under the stress of the spring to hold the pintle against longitudinal displacement.

In witness that I claim the foregoing I have hereunto subscribed my name this 30th day of June, 1924.

JOHN L. MOHUN.