Sept. 20, 1949. K. K. WEBBER 2,482,390

HEAT INDICATING JOURNAL BOX CLOSURE

Filed Sept. 19, 1947

Fig. 1.

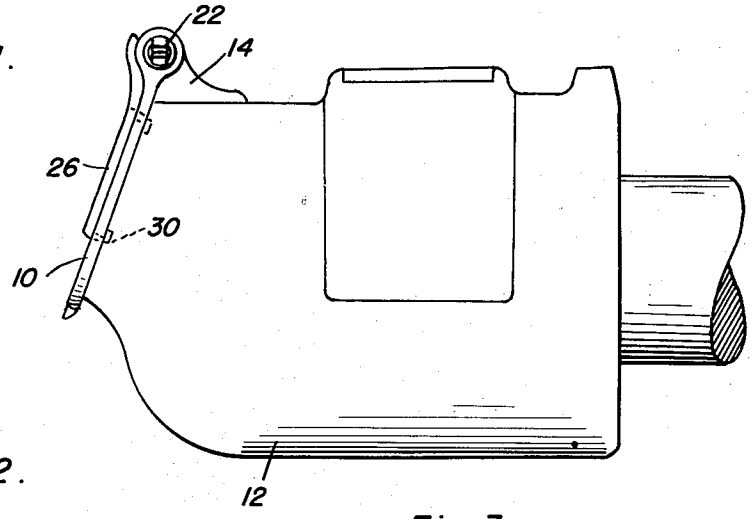


Fig. 2.

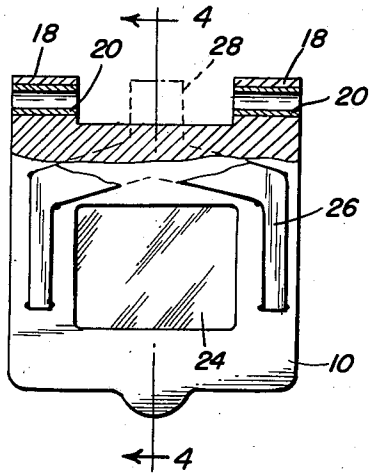


Fig. 3.

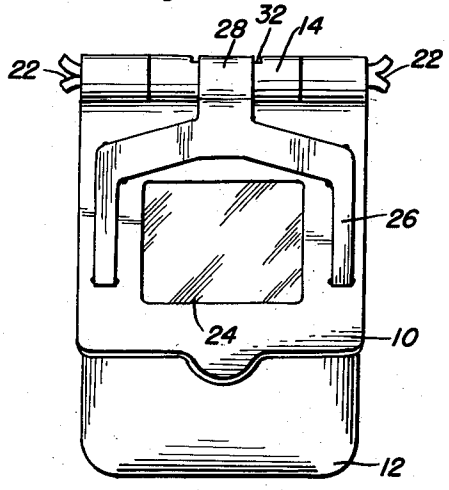


Fig. 4.

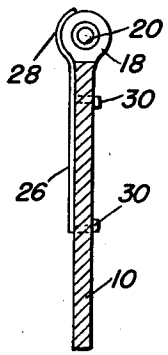
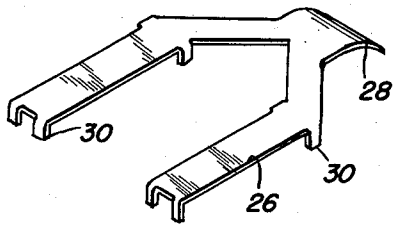


Fig. 5.



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HEAT INDICATING JOURNAL BOX CLOSURE

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Application September 19, 1947, Serial No. 774,941

10 Claims. (Cl. 116—114.5)

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This invention appertains to novel and useful improvements in journal box closures, particularly that class of closures which is adapted to emit a signal under predetermined conditions.

An object of this invention is to emit a warning or signal under predetermined thermal conditions of operation.

Another object of this invention is to emit a visual signal including distinguishing characteristics, whereby a selected journal box, which is defective, may be ascertained immediately.

Another purpose of this invention is to provide means for carrying out the above mentioned functions.

Another purpose of this invention is to provide an improved closure or lid for a conventional journal box, which has a flammable section therein, thermally responsive to predetermined temperatures.

Another purpose of this invention is to provide an extremely inexpensive device, utilizing a pivot means which is readily replaceable.

Ancillary objects and features of novelty will become apparent to those skilled in the art, in following the description of the preferred form of the present invention, illustrated in the accompanying drawing, wherein:

Figure 1 is a side view of the preferred form of the present invention, showing the same utilized in conjunction with a conventional journal box;

Figure 2 is a elevational front view of the invention shown in Figure 1, portions being broken away in section to illustrate details of construction;

Figure 3 is a front view of the invention shown in Figure 1;

Figure 4 is a sectional view of the invention shown in Figure 2 and taken substantially on the line 4—4 thereof and in the direction of the arrows, and;

Figure 5 is a perspective view of the resilient biasing means utilized for urging the closure or lid in a selected predetermined direction.

Referring now in detail to the illustrated preferred embodiment of the present invention, like reference characters are used throughout to indicate similar elements thereof.

This invention has been conceived and developed to provide a device for signal purposes, warning of a "hot box," which impedes the efficient operation of railroad cars and the like. As is well-known in the art, railroad car axles are journalled in devices known as journal boxes and occasionally these journal boxes become over-

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heated as to a temperature of about 400° F. to 450° F., whereby a hot-box condition exists, thereby inflicting serious injury to certain pertinent elements such as the axle bearings which are generally of the babbit type. This invention has been developed to provide a device for visual signalling when the journal box or boxes of a railway car reach a predetermined temperature.

A lid or closure 10 is provided in association with a conventional journal box 12. Brackets 14 may be associated with said journal box 12 and a suitable aperture provided therein. The said closure or lid 10 is provided with bearings 18 at one end thereof with suitable inserts or sleeves 20 therein.

An improved pivot pin is adapted to extend through the bracket 14 and the sleeve 20, mentioned above. This improved pivot pin may be composed of malleable material and slots 22 formed in each end thereof. After inserting the pin in the above mentioned apertures and sleeve, the malleable terminal portions may be spread at the slots 22 thereby effecting a locking means.

The aforementioned lid 10 may be composed of any suitable material. However, an insert 24 or section of the said lid 10 is composed of flammable material such as certain types of commercial plastic the specific material being chosen from already compiled data as found in various engineering sources such as the Modern Plastics publications. When the journal box reaches a predetermined temperature, the thermally responsive section 24 ignites. It is noted at this point that it is within the purview of the present invention to provide the entire lid of a thermally responsive material such as the section 24, if so desired.

The said sections 24 may contain certain compounds or elements in order that the products of combustion emitted therefrom in the burning process may be distinguishable. By this system, predetermined journal boxes may have certain designated colors indicating the journal box. Otherwise spoken, the section 24 may be chosen for all left, front journal boxes, which emit a red flame along with red products of combustion. Then, the right, rear journal box of each car in a train might emit another selected color such as green. By this system, the "hot box" may be ascertained immediately and the specific location of the said "hot box" may be known.

Means for resiliently biasing the lid or closure 10 is provided. This means is preferably a spider 26 having a spring steel extension 28 associated therewith. Lugs 30 protrude from the said spider

26 and are adapted to be rigidly secured to the said lid 10. Of course, suitable apertures may be provided in the said lid for receiving the lugs 30 or if desired, the said lugs 30 may otherwise be conventionally secured to the closure.

The spring steel extension 28 engages the upper portion of the bracket 14, wherein a cut-out 32 is provided. This spring steel extension engages this cut-out and retains the lid closed, resiliently urging the same, and when the said lid 10 is pivotally opened the spring steel extension 28 engages the back portion of the bracket 14 thereby retaining the said closure 10 in the open position.

The material of construction chosen for the insert or section 24 may be transparent in order that periodic inspections may be made of the internal portion of the journal box 12, without the necessity of lifting the lid 10 pivotally about the pin, described above. Small quantities of magnesium, copper, potassium or other nitrates may be added for emitting predetermined colors during oxidation. Of course, the sections 24 may be readily replaceable and any suitable construction may be supplied for this purpose.

Due to the extreme simplicity achieved by the present invention a further description thereof is deemed unnecessary. However, various departures may be made without departing from the spirit of the invention.

Having described the invention what is claimed as new is:

1. A closure for a journal box comprising a lid, means for pivotally securing said lid to a journal box, thermal responsive means associated with said lid for signalling at a predetermined temperature which is deleterious to the mechanism of the journal box, said thermal responsive signal means including a flammable section in said lid.

2. A closure for a journal box comprising a lid, means for pivotally securing said lid to a journal box, thermal responsive means forming at least a portion of said lid for signalling at a predetermined temperature which is injurious to the mechanism of the box, said thermal responsive signal means including a flammable section in said lid, said section being composed of a selected material for emitting predetermined colored flames and products of combustion.

3. A closure for a journal box comprising a lid, means for pivotally securing said lid to a journal box, thermal responsive means associated with said lid for signalling at a predetermined temperature which is injurious to the journal box mechanism, said thermal responsive signal means including a flammable section in said lid, said section being composed of a selected non-metallic material for emitting predetermined colored flames and products of combustion, means for resiliently biasing said lid, said pivot means including a pin having slotted end portions associated with said lid.

4. In a closure for journal boxes, a lid, a thermally responsive flammable section detachably associated with said lid, said section being flammably responsive to a temperature only slightly less than that which is deleterious to the mechanism of the associated journal box.

5. In a closure for journal boxes, a lid, a thermally responsive flammable section forming at least a portion of said lid, said section being transparent for inspection of the inner portions of a journal box and being flammably responsive to a temperature of the journal box only slightly less than that which is injurious to the box.

6. In a closure for journal boxes, a lid, a flammable section detachably associated with said lid thermally responsive for burning at a temperature above the safe operating temperature of a journal box, said section being composed of a material for emitting a predetermined color in the products of combustion.

7. In a closure for journal boxes, a lid, a thermally responsive flammable section detachably associated with said lid, said section being composed of a material for emitting a predetermined color in the products of combustion upon a temperature above the safe operating temperature of a journal box, and said section being transparent for inspection of the inner portion of a journal box and having a material associated therewith which while burning produces predetermined colored products of combustion.

8. A signal device for use in journal boxes, a lid mounted on the journal box, said lid having means associated therewith and forming at least a portion thereof for signalling upon a temperature which is above the safe operating temperature of the journal box, said means comprising a flammable material having an ignition characteristic of color.

9. A signal device for use with journal boxes comprising a lid, means for pivotally securing said lid to the journal box, thermally responsive means forming at least a portion of said lid for signalling at a predetermined temperature which is injurious to the mechanism of the journal box, said means including a flammable material which upon the mentioned predetermined temperature ignites and becomes substantially destroyed.

10. A signal device for use with journal boxes comprising a lid, means for pivotally securing said lid to the journal box, thermally responsive means forming at least a portion of said lid for signalling at a predetermined temperature which is injurious to the mechanism of the journal box, said means including a flammable material which upon the mentioned predetermined temperature ignites and becomes substantially destroyed, a second material associated with said first-mentioned material for emitting a predetermined colored flame and products of combustion.

KARL K. WEBBER.

REFERENCES CITED

The following references are of record in the file of this patent:

"New York Central Develops Hot-Box Alarm," published in Railway Age, vol. 120, No. 10, March 9, 1946, pages 504–506. Class 246/169.

Product Engineering, April 1944, page 67. Class 308/44.