

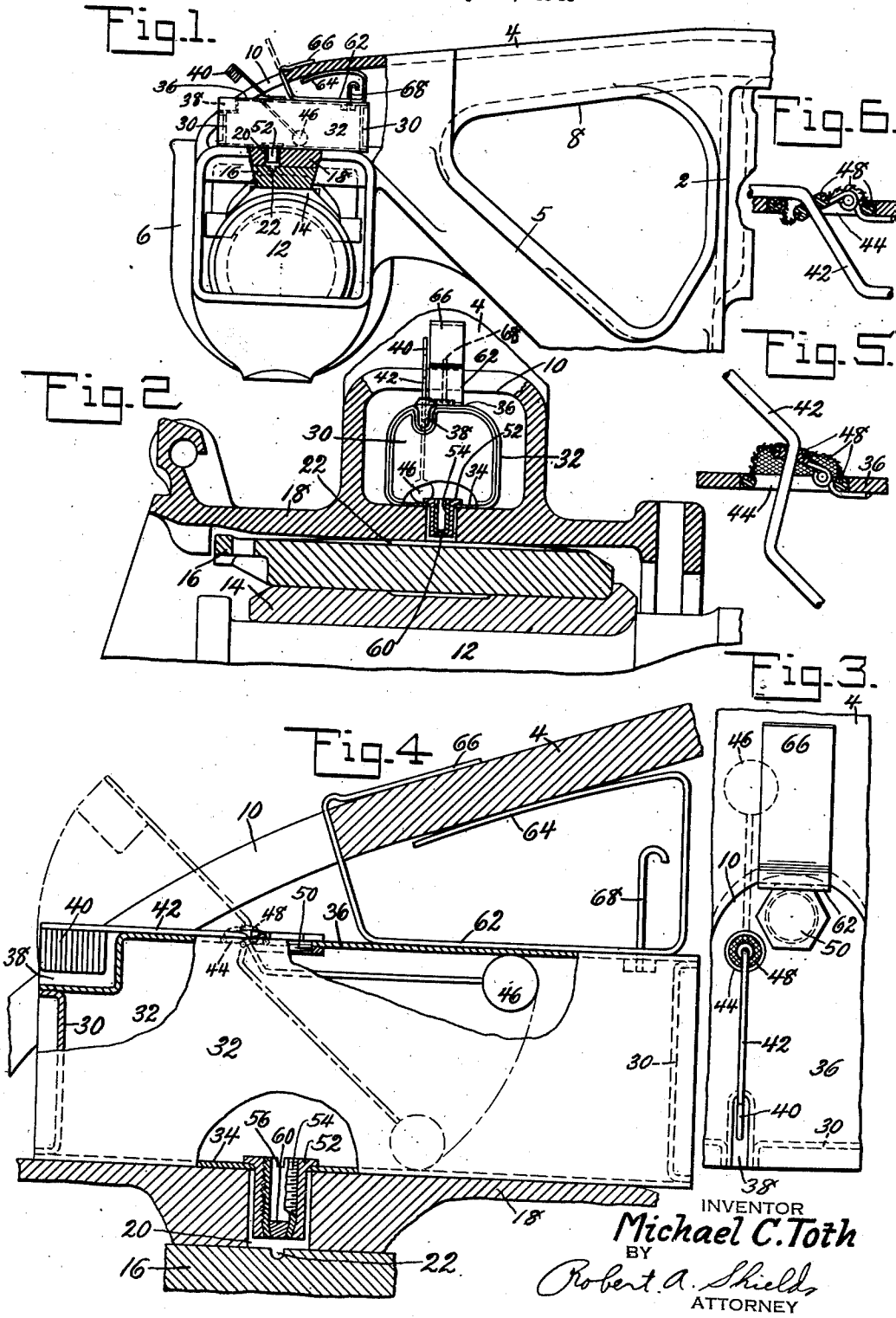
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M. C. TOTH

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WARNING AND LUBRICATING DEVICE FOR HOT JOURNALS

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INVENTOR
Michael C. Toth
BY
Robert A. Shields
ATTORNEY

UNITED STATES PATENT OFFICE

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WARNING AND LUBRICATING DEVICE FOR HOT JOURNALS

Michael C. Toth, Bloomsburg, Pa., assignor to
American Car and Foundry Company, New
York, N. Y., a corporation of New Jersey

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1

This invention relates to a warning and lubricating device for hot journals in general and in particular to such devices intended for use with railway car journals.

Recently railway car journals of certain high speed trains have been equipped with smoke and odor devices which release clouds of smoke and evil smelling gases when the journal becomes over heated. Such devices can, however, give only a warning and are rather ineffective at night time when the smoke is invisible or when applied to trucks used with tightly sealed air conditioned cars, in which case the odor can not enter the vehicle. Even when the train crew has received warning of a hot journal they are unable to do anything without causing excessive delay to the train. It is an object, therefore, of the present invention to provide a warning device which will release oil to cool and lubricate the bearing whenever the bearing temperature rises above a predetermined value.

A further object of the invention is the provision of a warning and lubricating device which will display a warning signal at the same time or shortly after it releases oil for lubricating and cooling the over heated journal.

A still further object of the invention is the provision of a self-contained warning and lubricating device which may be readily attached to existing trucks either as standard equipment or to take care of emergency conditions.

These and other objects of the invention will be apparent to persons skilled in the art from a study of the following description and accompanying drawings, in which:

Fig. 1 is an elevational view of a part of a truck with parts broken away to better disclose the construction adjacent the journal;

Fig. 2 is a sectional view taken through the journal box;

Fig. 3 is an enlarged partial plan view of the improved warning and lubricating device;

Fig. 4 is an enlarged view similar to Fig. 1 but with parts of the warning and lubricating device broken away to better disclose the construction, and

Figs. 5 and 6 are enlarged detail views of the sealing element between the oil container and signal member.

Referring now to the drawings in detail it will be seen that a more or less standard truck has been illustrated, which truck has bolster guide columns 2, compression members 4, tension members 5, which are joined together and to a journal box 6. The tension and compression members

2

and bolster columns define an opening or window 8 in the side frame which is made as large as possible in order to lighten the frame while maintaining full strength. The compression member as shown is of inverted channel form and where it merges into the journal box will be of box cross-section. The ends of the compression member are lightened as is customary by leaving a cored opening 10 in the web of the compression member above the journal box. The car axle 12 extends into the journal box and supports the journal brass 14 and wedge 16, which in turn support the truck frame and car body (not shown). The journal box top wall 18 is in direct metallic contact with wedge 16, which in turn is in direct metallic contact with brass 14, thus any heat generated between the journal of axle 12 and brass 14 will be transmitted directly through wedge 16 to the journal box top wall 18. Furthermore, any heat radiated from the journal and brass into the bearing will, of course, rise and heat the top wall of the journal box and this in addition to the heat caused by the direct metallic path from the brass 14.

The truck frame and its bearing support on the axle as described is of more or less standard construction and it is only necessary to very slightly modify the truck and bearing support to accommodate the improved warning and lubricating device. Such modification consists merely in boring a hole 20 in journal box top wall 18 and this can be readily done by bringing a drill vertically downward onto the top wall through compression member opening or window 10. In addition it may be desirable to cut a groove 22 in wedge 16 in order that lubricant escaping into hole 20 may readily pass to the bearing surfaces along passage 22.

The warning and lubricating device is constructed as a self-contained unit. This self-contained unit is built up of ends 30, sides 32, bottom wall 34 and top wall 36. Portions of the top wall and one of the end walls are depressed or so shaped as to provide a small pocket 38 within which may normally be nested in a hidden position a flag or other telltale 40. This flag is attached to a rod 42 bent so as to pass through an opening 44 in the top wall 36 and is adapted to carry on its one end a cork or float means 46. The opening 44 is closed, as best shown in Figs. 5 and 6, by means of a weatherproof flexible grommet device 48 which is adapted to closely grip the edges of opening 44 and rod or wire 42. Adjacent the opening 44 an opening is formed in top wall 36 in order that oil or other lubricant

3

may be introduced into the container. This hole is adapted to be closed by plug 50. Vertically beneath the filling opening an opening is provided in the bottom wall 34 and a ferrule 52 is inserted through this opening and welded or otherwise attached to the bottom wall 34. The ferrule is provided with a passageway threaded to receive a tubular plug 54 notched as at 56 at its upper end and closed as at 60 by means of a suitable fusible material which will melt at a desired temperature sufficiently low to protect the journal. The upper wall of the container has spot welded or otherwise attached thereto a strap member 62 which is bent upwardly and then downwardly as at 64 to engage beneath the web of the compression member 4 of the truck. The strap is of sufficient length to project toward the indicator end of the container and this projecting end is adapted to be folded upwardly and then backwardly as at 66 to overlap the upper or outer wall of the web or compression member 4. A small waterproof vent member 68 may be provided which admits air to the container thereby accommodating expansion and contraction and permitting ready discharge of the oil or lubricant from the container when the fusible plug 60 melts.

It will be seen from the preceding that a rectangular container has been provided which is a self-contained unit provided with its own attaching means, warning signal and discharge devices. This self-contained unit may be readily attached to the truck by inserting the same through truck opening 8 and pushing it outwardly at an angle until such time as the projecting ferrule 52 can drop into the hole 20 previously bored in the journal box top wall 18. With the box in this position the strap 62 can be bent upwardly and backwardly as at 66 to its final position shown in Figs. 1 and 4. In this position the unit, due to strap 62 and ferrule 52, can not move in any direction relative to the truck side frame. In case the axle, journal and brass 14 become over-heated the fusible material 60 will become liquid and permit the discharge of the oil or lubricant from the container directly into the journal box. As the oil or lubricant level drops the float 46 will also drop thereby raising the flag 40 to its position shown in Fig. 1, indicating to all persons that the journal box has been over heated at some time and the oil has been fully discharged. Reconditioning of the unit is readily accomplished by removing the filler cap 50, after which the tubular plug 54 may be removed by means of a screw driver or special wrench, after which a new plug may be inserted and the container filled with oil or lubricant. Filling of the container will, of course, place the flag or telltale 40 in its full line position of Fig. 4 and after replacing the cap 50 the device is again in position to fully protect the journal. It will be seen that with such a device sufficient lubricant can be carried to take care of the majority of hot journals until the train reaches a terminal or scheduled stop. It will also be seen that it is merely a matter of minutes to repair the unit and replenish the oil supply, after which the train can proceed provided, of course, the inspection does not indicate a badly damaged or scored journal.

While the self-contained unit has been described more or less in detail and is illustrated as applied to one or more good types of trucks, it is obvious that by slightly modifying the device it may be applied to other types of trucks with-

4

out departing from the scope of the invention as defined by the following claims.

What is claimed is:

1. The combination with a railway car truck frame having a journal box secured thereto and supported on an axle journal, of a self-contained signal and journal lubricating unit inserted as a unit into the truck frame above the journal box and adapted to be secured in the journal box and fully protected by the truck frame.
2. The combination with a railway car truck frame having a journal box secured thereto and supported on an axle journal, of a self-contained signal and journal lubricating unit secured within and fully protected by the frame above the journal box, said unit containing lubricant dischargeable under excessive temperature conditions of the journal into the journal box to thereby cool and lubricate said journal.
3. The combination with a railway car truck frame having a compression member connected to a journal box supported on an axle journal and having an opening in the compression member above the journal box, of a self-contained signal and journal lubricating unit inserted as a unit into position within and fully protected by the compression member above the journal box, and means connected to said unit and engaging an inner and outer surface of the compression member to retain said unit in position above the journal box.
4. The combination with a railway car truck frame having a compression member connected to a journal box supported on an axle journal and having an opening in the compression member above the journal box, of a self-contained signal and journal lubricating unit inserted as a unit into position within and protected by the compression member above the journal box, means connected to said unit and engaging an inner and outer surface of the compression member to retain said unit in position above the journal box, and fusible plug means forming part of said unit and extending into the journal box to position the units and to be subject to the heat of the journal, said plug becoming fluid when the axle journal reaches a predetermined temperature to discharge lubricant into the journal box.
5. The combination with a railway car truck frame having a compression member connected to a journal box supported on an axle journal, of a self-contained signal and journal lubricating unit inserted as a unit into position within and protected by the compression member above the journal box, means connected to said unit and engaging an inner and outer surface of the compression member to retain said unit in position above the journal box, fusible plug means forming part of said unit and extending into the journal box to position the unit and to be subject to the heat of the journal, said plug becoming fluid when the axle journal reaches a predetermined temperature to discharge lubricant into the journal box, and signal means forming part of said unit and operable upon discharge of lubricant to indicate loss of lubricant from the unit.
6. A self-contained signal and axle journal lubricating unit adapted to be connected to a car truck frame, said unit comprising a substantially closed container for lubricant, a fusible plug member extending through one side of the container, a signal operable by changes in level of lubricant in the container, and means fastened on said container and deformable to secure the unit to the truck frame.

5

7. A self-contained signal and axle journal lubricating unit adapted to be connected to a car truck frame, said unit comprising a substantially closed container for lubricant, a fusible plug member extending through one side of the container, a float in said container, a signal normally housed within a niche in said container, means extending through said container and connecting said signal and float, said means having pivotal connection to said container intermediate said signal and float whereby said signal will move out of said niche when the lubricant level falls in said container.

8. A self-contained signal and axle journal lubricating unit adapted to be connected to a car truck frame, said unit comprising a substantially closed container for lubricant, a fusible plug member extending through one side of the container, a signal operable by changes in level of lubricant in the container, and means fastened on said container to secure the unit to the truck

6

frame, said means including said fusible plug member and also strap means bendable to closely engage parts of the car truck frame to prevent shifting of said unit.

MICHAEL C. TOTH.

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