April 19, 1966 T. E. LOCKE 3,246,934

EMERGENCY SUPPLY CONTAINER AND METHOD

Filed Sept. 18, 1963

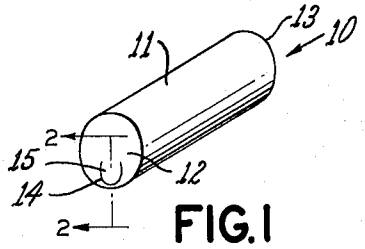


FIG.1

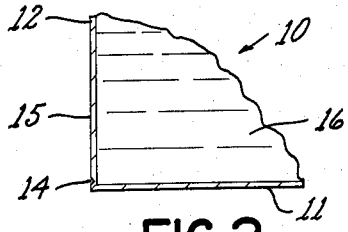


FIG.2

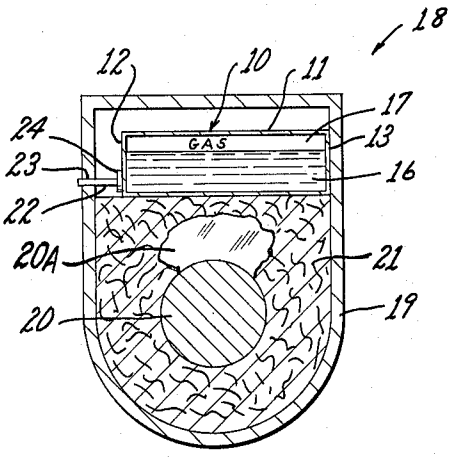


FIG.3

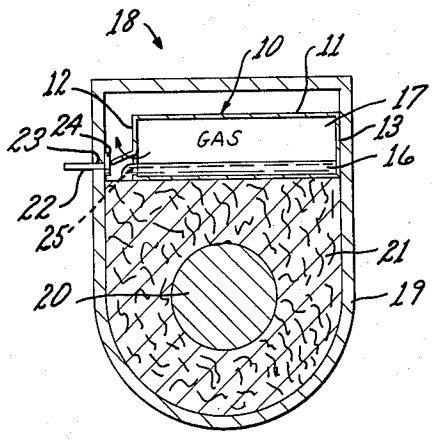


FIG.5

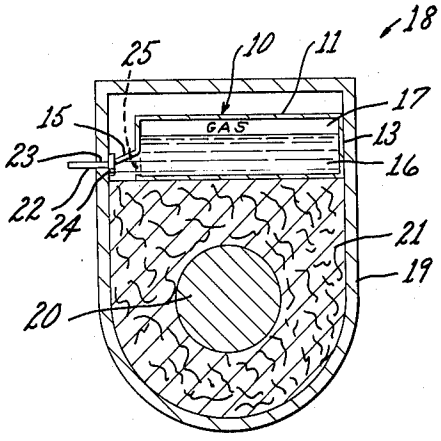


FIG.4

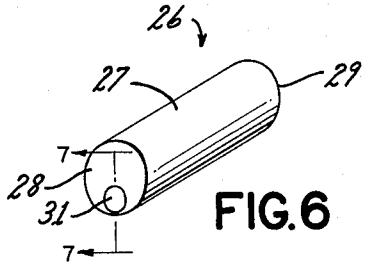


FIG.6

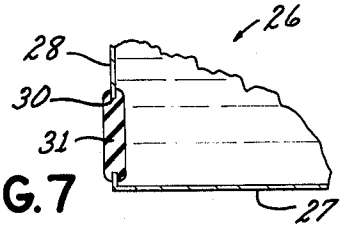


FIG.7

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EMERGENCY SUPPLY CONTAINER AND METHOD

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This invention relates to an improved emergency lubricating container or the like as well as to an improved method of emergency lubrication or the like.

It is well known that railroad cars frequently have the wheel bearing journals thereof severely damaged when the railroad car is on a long run and the journal box thereof has been improperly lubricated because of the excess heat created by the so called "hot box" situation that results whereby this improper lubrication has been an expensive and adverse condition for the railroads.

However, according to the teachings of this invention, an improved container is provided which can be located in the journal box of a railroad car and the like and should the journal box heat up because of improper lubrication thereof, the container of this invention automatically opens and discharges an emergency supply of lubricant to the packing in the journal box to prevent damage to the bearing parts so that a "hot box" situation cannot exist.

Further, the container of this invention is so constructed and arranged that the same provides a visible signal exteriorly of the journal box so that upon routine checking of the railroad cars, it can be determined whether a particular emergency container has been discharged requiring attention to that particular journal box.

However, it is to be understood that the container and method of this invention has many other uses than just for an emergency lubricating system for a railroad car journal box or the like and that this invention is not to be limited to only such a situation.

Accordingly, it is an object of this invention to provide an improved container having one or more of the novel features of this invention as set forth above or hereinafter shown or described.

Another object of this invention is to provide an improved journal box for a railroad car or the like, the journal box having one or more of the novel features set forth above or hereinafter shown or described.

A further object of this invention is to provide an improved method of utilizing such a container or the like.

Other objects, uses and advantages of this invention are apparent from a reading of this description which proceeds with reference to the accompanying drawings forming a part thereof and wherein:

FIGURE 1 is a perspective view illustrating one embodiment of the improved container of this invention.

FIGURE 2 is an enlarged, fragmentary, cross-sectional view taken on line 2—2 of FIGURE 1.

FIGURE 3 is a schematic cross-sectional view illustrating the improved container of FIGURE 1 disposed in a conventional railroad car journal box or the like.

FIGURE 4 is a view similar to FIGURE 3 and illustrates the initial opening of the container of this invention.

FIGURE 5 is a view similar to FIGURE 4 and illustrates a further operating position of the parts of this invention.

FIGURE 6 is a view similar to FIGURE 1 and illustrates another embodiment of the container of this invention.

FIGURE 7 is an enlarged, fragmentary, cross-sectional view taken on lines 7—7 of FIGURE 6.

While the various features of this invention are hereinafter described and illustrated as being particularly adaptable for providing an emergency lubricating system for a railroad car journal box or the like, it is to be understood that the various features of this invention can be utilized singly or in any combination thereof to provide a supply of fluid or the like for other systems as desired.

Therefore, this invention is not to be limited to only the embodiments illustrated in the drawings, because the drawings are merely utilized to illustrate one of the wide variety of uses of this invention.

Referring now to FIGURE 1, an improved container of this invention is generally indicated by the reference numeral **10** and can comprise a conventional metallic container having a cylindrical side wall **11** and opposed flat end closures **12** and **13** secured thereto in any suitable manner.

However, the end wall **12** of the container **10** is scored at **14** to define part of the perimeter of a flap means **15** for a purpose hereinafter described.

For example, the score **14** can partially pass through the end wall **12** in the manner illustrated in FIGURE 2 so that the end wall **12** is weakened in the area of the flap **15** so that the flap **15** can be readily severed from the end wall **12** for a purpose hereinafter described.

For example, the score **14** in the end wall **12** of the container **10** can be so controlled that the flap **15** will only open when an internal force in the container **10** reaches a predetermined pressure.

As illustrated in FIGURE 3, a certain quantity of lubricant **16** is disposed in the container **10** and the remainder of the chamber in the container **10** is filled with a suitable gas **17** for the purpose now to be described.

The gas **17** is so selected that the same changes its working pressure as the temperature thereof increases so that when the gas **17** senses a predetermined temperature, the pressure thereof pushing on the lubricant **16** is of such a value that the same forces open the flap means **15** to provide an opening in the end wall **12** of the container **10** through which the lubricant **16** cannot only be forced out of by the gas **17**, but also can flow out of the same by gravity for a purpose hereinafter described.

For example, the gas **17** can comprise dichlorodifluoromethane normally sold under the trademark "Freon-12" and can have a p.s.i.g. of 70.192 at 70° F. However, when the temperature of the gas **17** reaches 100° F. it has a p.s.i.g. of 117.16. Similarly, when the gas **17** has a temperature of 150° F., it has a p.s.i.g. of 234.16, and when the gas **17** has a temperature of 200° F., it has a p.s.i.g. of 415.39.

Therefore, it can be seen that by properly selecting the gas **17** and by properly providing the score **14** in the end wall **12** of the container **11**, the selected gas **17** can force open the flap means **15** of the container **10** when the same senses a predetermined temperature.

While dichlorodifluoromethane has been heretofore described as being a particular gas that can be utilized with the container **10** of this invention, it is to be un-

derstood that other gas or fluid can be utilized to control the operation of the container **10** in the manner now to be described.

Referring now to FIGURE 3, a conventional railroad journal box is generally indicated by the reference numeral **18** and comprises a housing **19** having a rotatable wheel shaft **20** passing therethrough and being mounted for relative movement relative to the journal box housing **19** by suitable bearing means **20A**.

A suitable packing **21** is disposed in the housing **19** and surrounds the journal shaft **20** so as to provide means for retaining a lubricant for lubricating the shaft **20** at the bearing means **20A** of the journal housing box **18**.

During normal maintenance of the railroad car, a maintenance man attempts to lubricate each journal box **18** in a conventional manner whereby the packing **21** is saturated with a lubricant which normally supplies a sufficient amount of lubricant to the shaft **20** for the normal length of time of operation of the particular railroad car until it is again lubricated in the conventional manner.

However, as previously set forth, it has been found that either by negligence or by improper lubrication means, certain journal boxes **19** are not properly lubricated so that during a run of the railroad car, the lubricant in the packing **21** is used up so that subsequent operation of the shaft **20** causes friction on the bearing means **20A** thereof whereby the same adversely heats up until the shaft and/or bearing means **20A** are completely ruined.

However, by locating the container **10** of this invention above the packing **21** in the journal box **18** in the manner illustrated in FIGURE 3, the container **10** of this invention can prevent the aforementioned damage to the shaft **20** and its bearing means **20A** in a manner now to be described.

As illustrated in FIGURE 3, the container **10** is disposed in the housing **19** of the journal box **18** in such a manner that the same is disposed on its side with the flap means **15** thereof being disposed adjacent the packing **21**.

A suitable plunger **22** is provided and has the shank portion thereof passing out through an opening **23** formed in the journal housing **19** while an enlarged end **24** thereof abuts against the flap means **15** of the container **10** for a purpose hereinafter described.

During the operation of the railroad car journal box **18**, it may be found that through improper lubrication thereof, that the journal box **18** begins to heat up because of the unlubricated bearing surfaces of the moving parts thereof whereby the increased temperature of the journal box **18** increases the temperature of the gas **17** and the container **10**. As the temperature of the gas **17** rises in the above manner, the pressure thereof acting against the lubricant **16** increases until the same reaches a predetermined pressure and forces open the flap means **15** in the end wall **12** of the container **10**.

When the pressure of the gas **17** reaches the predetermined point, the same forces open the flap means **15** of the container **10** and, because, the flap **15** has an upper portion thereof integrally hinged to the container end wall **12**, the same bends upwardly in the manner illustrated in FIGURE 5 to provide an opening **25** in the end wall **12** of the container **10** through which the lubricant **16** can be forced out of the container **10** by the pressure of the gas **17** above the same.

At the same time that the flap means **15** opens, the flap means **15** pushes against the enlarged head **24** of the indicator means **22** to force the shaft to project completely out of the housing **19** in the manner illustrated in FIGURE 4 so that the same provides a visible signal means to a person viewing the exterior of the journal box **19** that the emergency lubricating container **10** therein has been discharged and that the journal box **19** requires attention.

When the flap means **15** of the container **10** has been opened in the manner illustrated in FIGURE 4, it can be seen that the pressure of the gas **17** rapidly forces the lubricant **16** out through the opening **25** so that the same can properly saturate the packing **21** to provide lubricating means for the bearing means **20A** of the shaft **20** to prevent the same from being adversely affected.

As the level of the lubricant **16** is lowered, it can be seen that when the same reaches the level of the opening **25** in the end wall **12** of the container **10**, the gas **17** can now escape out of the opening **25** in the manner illustrated in FIGURE 5 whereby the remaining lubricant **16** in the container **10** can flow by gravity out of the opening **25** to the packing **21** so that substantially the entire amount of lubricant **16** can be utilized to saturate the packing **21** of the railroad car journal box **18**.

Therefore, it can be seen that the container **10** of this invention is readily adapted to sense an adverse temperature condition of the railroad journal box **18** and can reduce the temperature situation thereof by providing an emergency supply of lubricant to the shaft **20** before the same has reached a temperature which would adversely affect the same as well as the bearing means of the journal box **19**, the supply of lubricant provided by the container **10** being sufficient to last for many hundreds of miles of use of the particular railroad car.

While one form of providing the flap means **15** in the container **10** has been previously described, it is to be understood that other suitable means can be provided for the container **10** of this invention whereby the resulting structure will still fall within the scope of the appended claims.

For example, an opening can be provided in the end wall **12** of the container **10** and a suitable plug can be provided therein which will rupture or blow out when the pressure of the gas **17** reaches a predetermined pressure.

In particular, reference is made to FIGURE 6 wherein another container of this invention is generally indicated by the reference numeral **26** and comprises a cylindrical side wall **27** having a pair of opposed end walls **28** and **29**.

The end wall **28** has an opening **30** cut therein in the manner illustrated in FIGURE 7 and a suitable plug **31** is disposed in the opening **30** to temporarily close the same.

However, the plug material **31** is so constructed and arranged that the same will blow outwardly when the temperature of the gas in the container **26** reaches a predetermined temperature in the manner previously described for the container **10** so that the plug **31** will operate the signal means **22** in the manner previously described.

Therefore, it can be seen that many variations may be made in the container of this invention while the same will still function in the manner previously described and fall within the scope of the appended claims.

Thus, it can be seen that not only does this invention provide an improved container and an improved journal box for a railroad car or the like, but also this invention provides an improved method for utilizing such a container or the like.

While the form of the invention now preferred has been disclosed as required by the statutes, other forms may be used, all coming within the scope of the claims which follow.

What is claimed is:

1. In combination, a housing, bearing means disposed in said housing, and a container disposed in said housing, said container containing a lubricant and a gas means contacting said lubricant, said container having openable means to open said container when said gas means reaches a predetermined temperature caused by said bearing means whereby said gas means forces said lubricant out through said openable means to lubricate said bearing means.

2. A combination as set forth in claim 1 wherein said housing carries signal means and said openable means of said container actuates said signal means when said openable means is opened by said gas means.

3. A combination as set forth in claim 1 wherein said openable means of said container comprises a scored portion of a wall of said container.

4. A combination as set forth in claim 1 wherein said openable means comprises a plug means disposed in an opening in a wall of said container.

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