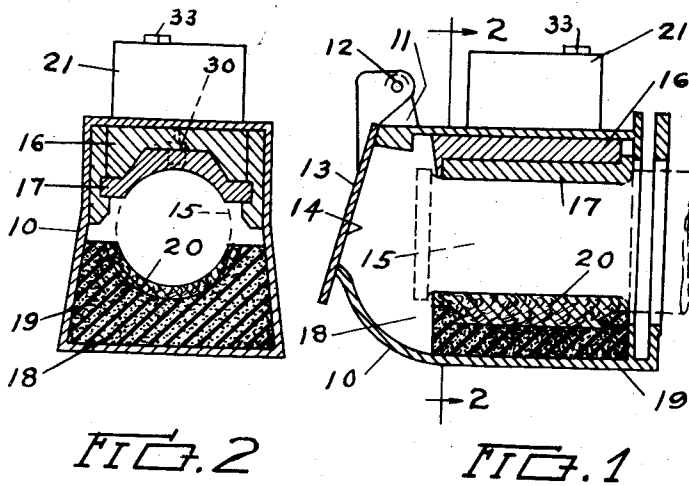
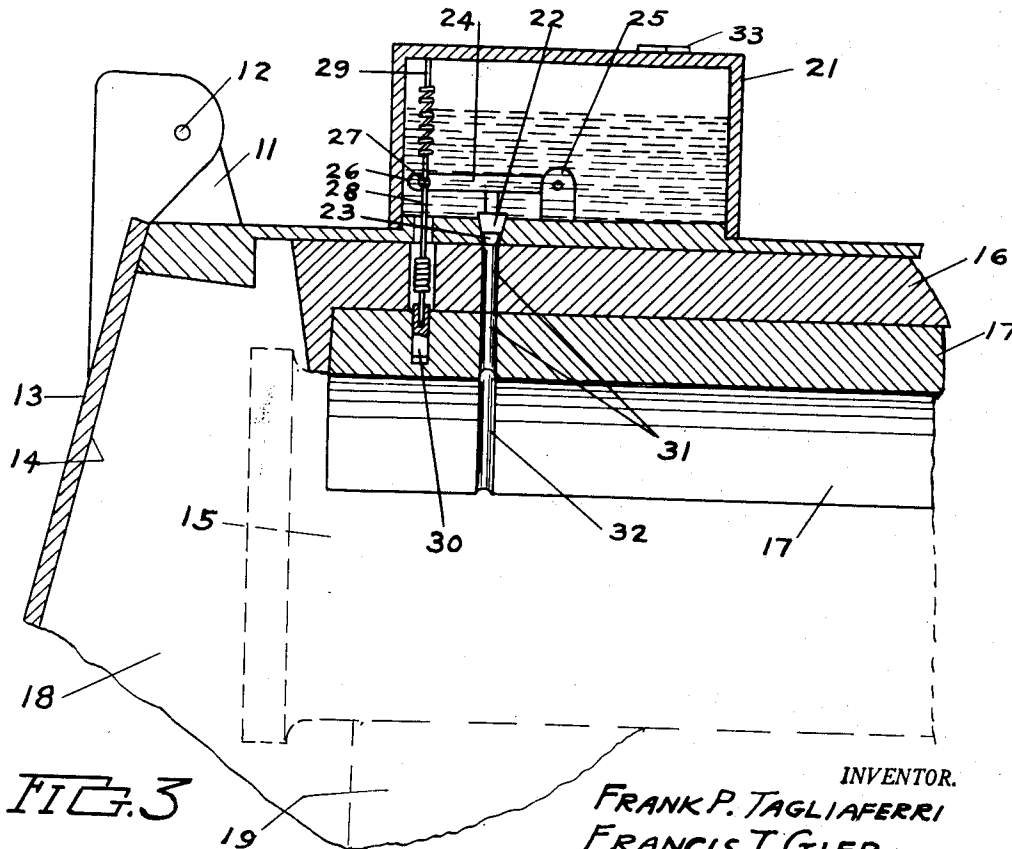


Nov. 3, 1953

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JOURNAL BEARING LUBRICATOR

Filed May 1, 1952

2,657,958



UNITED STATES PATENT OFFICE

2,657,958

JOURNAL BEARING LUBRICATOR

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Application May 1, 1952, Serial No. 285,502

1 Claim. (Cl. 308—76)

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This invention relates in general to journal lubrication, and in particular to an emergency lubricator for railway car journals, and other journals having similar problems of lubrication.

In practically all types of modern journal box constructions, the weight of the superimposed load is transmitted from the journal box itself to the end of the associated axle through means positioned above the axle and including a bearing, generally semi-cylindrical in shape. While the bearing is fabricated of some suitable anti-friction metal, the axles are always of steel, and in the event that dust and dirt penetrate into the journal box in sufficient quantities or in the event that the lubricant supply fails wholly or partially, or for both reasons, the coefficient of friction between the rotating axle and its bearing may be raised with the result that large quantities of heat are generated, thus causing the well known "hot box."

Emergency lubricating devices have been suggested for use in combination with journal box construction, but such appliances have not come into common use, largely by reason of the fact that extensive modifications of existing journal boxes have been required.

Previously, oil saturated waste material was placed in the journal boxes as a means for retaining the lubricating oil and distributing the lubricant over the surfaces of the axle and bearing of railway cars. Due to irregularities of the surface of the axle and perhaps due to other causes, any fibres, dust or dirt which may collect on the axle or get between the bearing and the axle will eventually clog up the bearing, wiping the oil off the axle. Furthermore, the waste or fabric becomes glazed along its top surface and sometimes carbonizes slightly to almost stop the flow of oil through capillary action within the lubricator to the surface of the axle. In any such case the journal bearing usually becomes hot as formerly mentioned and necessitates immediate attention. This problem of lubricating the journal boxes on freight cars in particular has shortened the length of non-stop hauls on the railroads. Felt cloth mounted in the bearing box has been suggested as a substitute for the waste, but the fabric must be in a manner such that it will remain in uniform engagement with the axle and be spring pressed to take up wear in its use. Metal springs have been employed to accomplish this purpose. The springs lose their resiliency and wear out and are inefficient in operation and costly to maintain. The springs bear unevenly on the felt, with the spaces in between

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the springs not properly supported. These unsupported spaces between the springs cause the felt cloth to disintegrate and fall apart and become stringy.

In accordance with this invention, an emergency cooling and lubricating means is provided which may be applied to conventional journal box construction without substantial modification or rearrangement of the parts thereof. The new appliances can be incorporated in journal boxes under construction at the point of manufacture of railway rolling stock or may be applied easily and conveniently to rolling stock now in use. The invention is simple in construction and practical and provides a safety means which is not only inexpensive in its first cost but which may be applied at minimum cost.

It is an additional object of this invention to provide a new and improved lubricator for railroad car journal bearings.

A further object of this invention is to provide a lubricator which may be easily inserted and removed from a journal box for general maintenance purposes.

Another object of this invention is to provide a new and improved lubricator for railroad car journal bearings having a thermostatic valve control means for supplying an additional oil supply to the bearings at predetermined intervals to prevent overheating the bearings and causing a "hot box."

It is an additional object of this invention to provide a new and improved lubricator for railroad car journal bearings which will not shred and clog therein to cause a hot box therein.

It is an additional object of this invention to provide a new and improved lubricator for railroad car journal bearings having an auxiliary lubricating supply for the bearings controlled by a temperature operated valve.

It is an additional object of this invention to provide a new and improved bearing lubricator of such material that it is non-soluble in oil and capable of long continued use and of such a structure as to promote capillary action of the oil therein to feed said oil to the journal.

A still further object of this invention is to provide a lubricator having a natural resiliency, such that it will take up wear and remain in uniform engagement over the surface of the axle to feed lubricant thereto.

A further object of the invention is to provide a device which is sufficiently flexible in nature to permit its easy insertion in or removal from a conventional railway journal box, which is pro-

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vided with an inherent bias or resiliency for maintaining the device in contact with a railway car axle throughout an appreciable portion of its circumference in a journal box, which is durable and dependable in operation and which is inexpensive to manufacture and install.

Additional objects of the invention will become apparent as the invention is more fully set forth.

For a better understanding of the invention, its objects and the principles thereof, reference is made to the accompanying drawings, wherein a particular form of the invention is illustrated by way of example. The following description explains the details, while the claims indicate the scope of the invention.

In the drawings:

Figure 1 is a longitudinal sectional view of the device in position in a standard railway journal box, embodying this invention;

Figure 2 is a sectional view taken along lines 2-2 of Figure 1; and

Figure 3 is an enlarged longitudinal sectional view similar to that shown in Figure 1 with parts of the auxiliary emergency storage device broken away to show its inner construction.

Similar reference characters refer to the same parts throughout the drawings.

In the construction shown 10 designates a portion of a journal box of a railway car, this journal box being of well known and conventional design. The journal box at its outer upper end is provided with an upstanding lug 11 which is provided with a pin 12 to pivotally support the conventional journal box door or cover 13, and which is adapted to close the opening 14 of the journal box. As shown in dotted lines in Figure 1, a portion 15 of a railway car axle is received within the journal box and supports the car structure, not shown, in a conventional and well understood manner, by means of a removable bearing block 16, superimposed upon a bearing 17.

As shown in Figures 1 and 2, the lower portion of the journal box 10 provides a chamber 18 which heretofore has customarily been filled with waste or packing which has been tightly pressed into engagement with the lower surface of the journal 15. In accordance with the teaching of this invention the waste is replaced by a sponge rubber or expanded cellulose material 19 having interconnecting cells in a labyrinth-like formation, and provided at its top surface with a piece of conventional bearing felt 20 preferably about one-half inch thick that is pressed into engagement with the lower surface of the journal 15 by the resiliency of the artificial sponge 19 and feeds a film of lubricant to the surface of the axle from the chamber 18 after it has passed through the interconnecting cells and bearing felt to the surface of axle. The chamber 18 is filled with lubricant in the same manner as when the waste material was used, but the lubricant capacity of the chamber is increased because the oil penetrates up through the cells to the bearing felt which is held in frictional contact with the axle and without excessive pressure, and thereby eliminates glazing the axle contacting surface of the felt which prevents the free passage of the oil therethrough. This happens when waste is used.

An automatically operated emergency lubricating supply means is provided and comprises a storage tank 21 preferably mounted on the top of the journal box 10 or affixed to the railroad car, not shown, so that the tank will be positioned

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above the chamber 18. The tank and operating mechanism can be placed inside the journal boxes when they are large enough. The storage tank 21 is provided with a valve head 22 that rests in a seat 23 and is opened and closed by a lever 24 pivotally supported by a bracket 25. The end 26 of the lever 24 is provided with a hole 27 large enough to receive the bent ends of springs 28 and 29. The upper end of spring 29 is affixed to the storage tank 21 and the lower end of spring 28 is soldered to a heat conducting plate 30 attached to the bearing 17. The solder used will melt when the bearing reaches a predetermined temperature and release the spring 28. The spring 28 is sufficiently strong to keep the valve head 22 positioned in the seat 23 and the tank closed when in normal operation.

In the operation of this system, the conventional waste is removed from the chamber 18 and discarded. The sponge 19 which is larger than the chamber 18 is compressed therein and expands when released, to fill out the chamber 18. The oil capacity of the chamber 18 is increased over the use of waste as the oil penetrates and fills the cells of the sponge composition and rises to a higher level in the chamber than is possible when solid rubber or tightly packed waste is used. The pressure of the bearing felt against the axle is much less and its life is increased and it remains porous for a longer period than when waste and rubber materials are tightly pressed against the axle.

If the temperature of the bearing should be increased above a predetermined amount, the excess heat will be conducted to the metal plate 30 and melt the solder that holds it to the spring 28, this releases the spring 28 and the lever 24 is pulled upward by the spring 28, raising the valve head 22 from the seat 23, allowing the auxiliary supply of oil to flow down through the valve seat 23 in the tank 21 and openings 31 in the removable block bearing 16 and bearing 17 and around the groove 32 and drip down into the journal box chamber 18 and be fed up through the sponge 19 and bearing felt 20 to the axle 15 by capillary action. In this application the oil is shown as following the openings 31 and groove 32 from the emergency tank 21, but it is appreciated that the same results can be obtained by piping the emergency oil supply from the tank to the chamber 18 without entailing invention.

While but one general form of the invention is shown in the drawings and described in the specification, it is not desired to limit this application for patent to this particular form as it is appreciated that other forms of construction could be made that would use the same principles and come within the scope of the appended claim.

Having thus described the invention, what is claimed is:

In combination, a journal box, a journal extending therein, upper and lower bearing elements in said box oppositely contacting the journal, the lower of said bearing elements comprising a cellular, porous and resilient substance, an oil reservoir associated with the journal box, channel means for supplying oil from said reservoir to the above substance to be absorbed thereby, a valve controlling said channel means, a horizontal lever connected to said valve and having one end pivoted on the reservoir, a spring connected at one end to the end of the horizontal lever opposite the pivoted end thereof, the opposite end of said spring to be secured to the

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reservoir, a second spring connected at one end to the same end of the horizontal lever as the first mentioned spring, a fusible member embedded in one of said bearing elements, and a connection between said fusible member and the free end of the second mentioned spring, both springs normally tensioning the horizontal lever in a position in which the valve closes the channel means, whereby when the fusible member melts due to heat in the bearing members said second spring is freed and the first spring causes pivotal movement of the horizontal lever to open

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the valve and allow oil flow to the resilient substance.

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