J. J. HENNESSY.

AUTOMATIC JOURNAL LUBRICATOR.

APPLICATION FILED DEC. 5, 1916.

1,245,586.

Patented Nov. 6, 1917.

2 SHEETS—SHEET 1.

Fig. 1

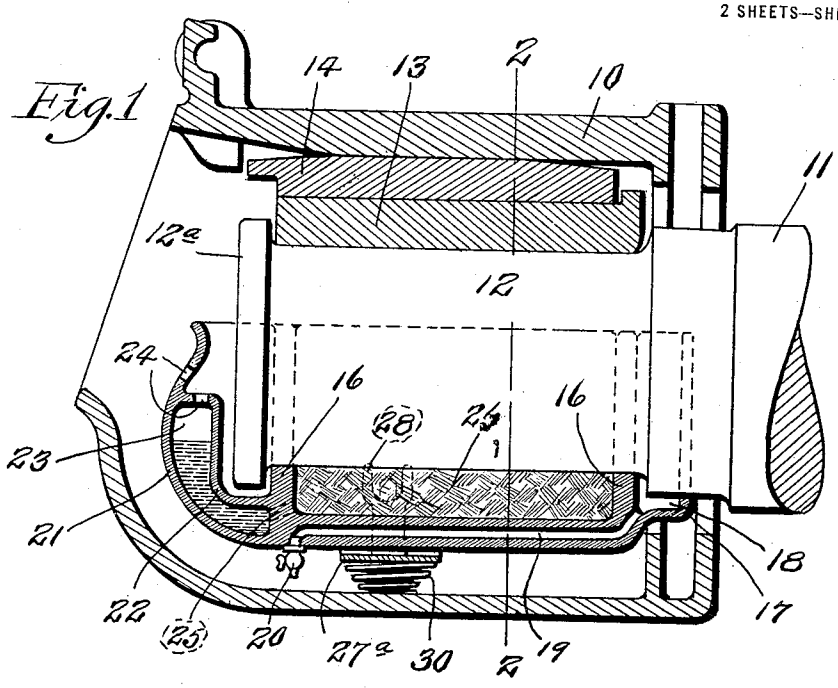


Fig. 2

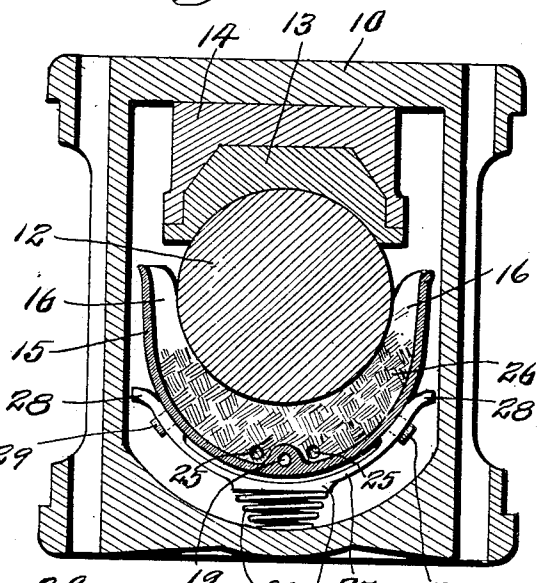


Fig. 3

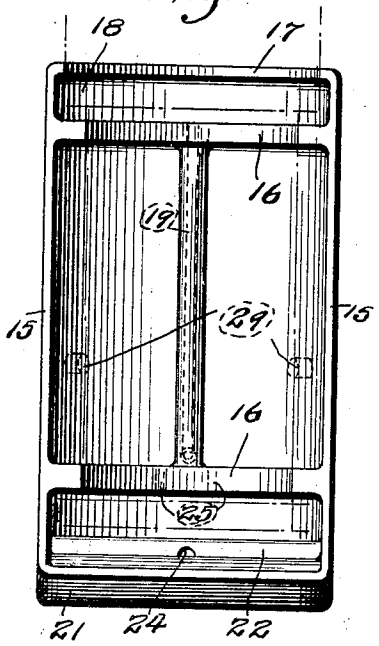
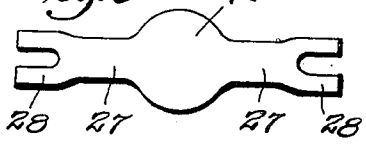


Fig. 3a



Inventor

James J. Hennessy

By F. K. Cornwell Atty.

J. J. HENNESSY.

AUTOMATIC JOURNAL LUBRICATOR.

APPLICATION FILED DEC. 5, 1916.

1,245,586.

Patented Nov. 6, 1917.

2 SHEETS—SHEET 2.

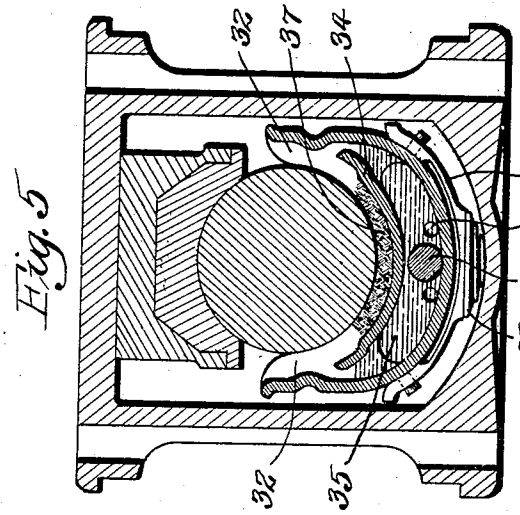


Fig. 5

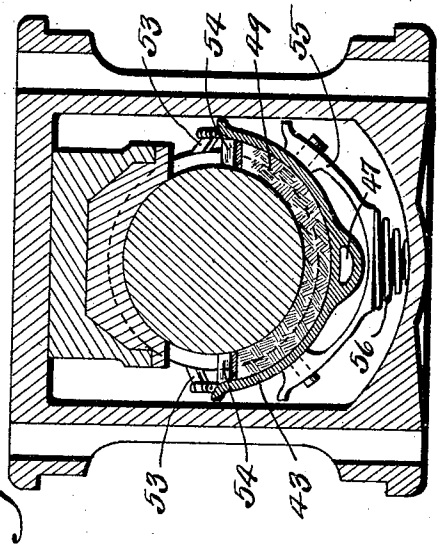


Fig. 7

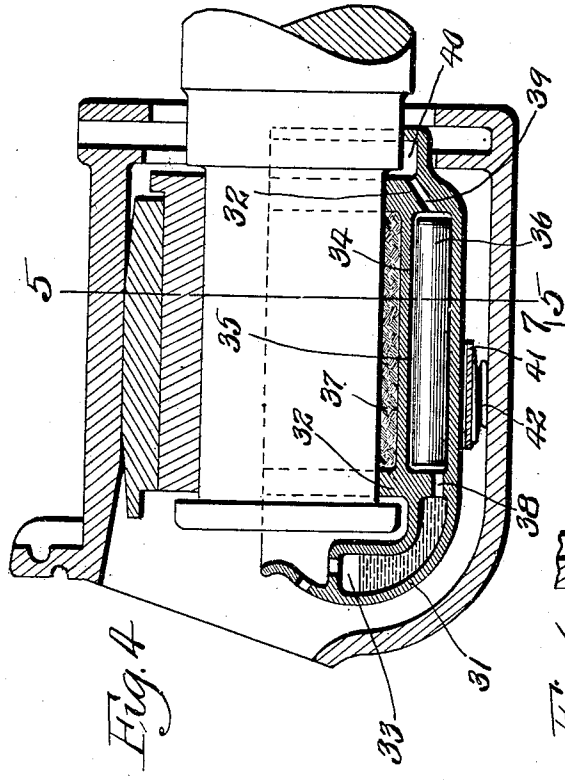


Fig. 4

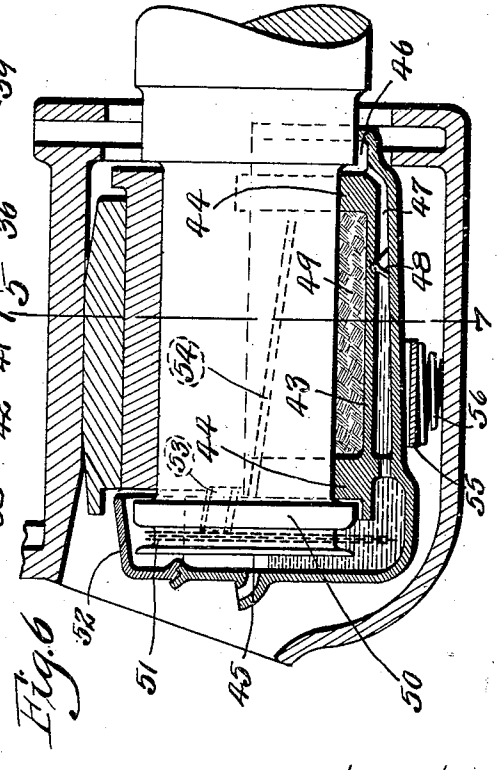


Fig. 6

Inventor

James J. Hennessy

By E. C. Comwell Atty.

UNITED STATES PATENT OFFICE.

JAMES J. HENNESSY, OF ST. LOUIS, MISSOURI.

AUTOMATIC JOURNAL-LUBRICATOR.

1,245,586. Specification of Letters Patent. Patented Nov. 6, 1917.

Application filed December 5, 1916. Serial No. 135,161.

To all whom it may concern:

Be it known that I, JAMES J. HENNESSY, a citizen of the United States, residing at St. Louis, Missouri, have invented a certain new and useful Improvement in Automatic Journal-Lubricators, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

My invention relates generally to lubricating devices, and more particularly to a device adapted to be positioned in a journal box for lubricating the journal on the end of a car axle, the principal object of my invention being to provide a comparatively simple, inexpensive structure which, when properly applied for use, will provide the journal with an "oil bath" by reason of the fact that liquid lubricant is automatically fed or delivered directly onto that portion of the journal which contacts with the usual brass bearing associated with car journal boxes.

Further objects of my invention are to provide a lubricant container, preferably in the form of a metal pan; to provide bearing ribs at the ends of the lubricant compartment; to provide a yielding support for the lubricant container, said support being arranged and constructed so as to permit the container to readily yield to the movement of the journal and at the same time exerting upward pressure on said container so as to maintain practically oil-tight joints between the bearing ribs of the container and the journal; and further to provide the container with a liquid lubricant reservoir from which the lubricant distributing material located in the lubricant container receives a constant and unvarying supply of lubricant.

With the foregoing and other objects in view, my invention consists in certain novel features of construction and arrangement of parts hereinafter more fully described and claimed and illustrated in the accompanying drawings, in which—

Figure 1 is a vertical section taken through the center of a journal box and showing an automatic device of my improved construction positioned therein;

Fig. 2 is a vertical section taken approximately on the line 2—2 of Fig. 1;

Fig. 3 is a plan view of the container forming part of my invention;

Fig. 3ª is a plan view of a yoke which combines with a compression spring in supporting the lubricant container within the journal box.

Fig. 4 is vertical section taken lengthwise through the center of a journal box and showing a modified form of the lubricating device;

Fig. 5 is a vertical section taken approximately on the line 5—5 of Fig. 4;

Fig. 6 is a vertical section of a journal box and showing a further modified form of the lubricating device;

Fig. 7 is a vertical section taken on the line 7—7 of Fig. 6.

Referring by numerals to the accompanying drawings and particularly Figs. 1 to 3ª, inclusive which illustrate a practical embodiment of my invention, 10 designates a journal box, 11 a car axle, 12 the journal on the end thereof, 12ª the flange on the end of said journal, 13 the usual journal bearing of brass or bronze, and 14 the wedge for holding said journal bearing in place, all of said parts being of ordinary and well-known construction.

The lubricant container contemplated by my invention is preferably constructed of metal, either cast or pressed, and of such size and shape as to readily fit in the lower portion of the chamber within the journal box and arranged to inclose the lower half of the journal 12. The body 15 of the container is substantially U-shape in cross section and formed integral therewith and on the interior thereof near its ends are bearing ribs 16 which are adapted to engage directly against the surface of the journal 12 and at points near the ends thereof; *i. e.*, the rib at the inner end of the container bears against the journal adjacent to the shoulder between said journal and the axle 11 while the

rib near the outer end of the container bears against the journal immediately adjacent to the flange 12a. These bearing ribs extend upwardly on the inside of the body 15 of the container and when the latter is properly applied for use, said bearing ribs engage the journal 12 from the underside thereof to points above its center line. (See Fig. 2.)

The inner end of the container is provided with a comparatively narrow flange or inner end wall 17 which fits snugly against the axle 11 at a point near the inner end of the journal box 10 and the space between said flange or inner end wall and the adjacent bearing rib 16 serves as a pocket 18 which is adapted to receive any liquid lubricant which may escape past the inner one of the bearing ribs 16. Leading from the bottom of this pocket lengthwise through the bottom of the container is a passageway 19, the same terminating at a point near the outer one of the bearing ribs 16 and seated in the container at the outer end of said passageway is a valve 20. Normally this valve 20 is closed and when opened any liquid lubricant which may have accumulated in the pocket 18 and passageway 19 may be drawn off.

The outer end of the container is provided with an upwardly projecting curved end wall 21 and arranged immediately inside this end wall is a transversely disposed partition 22, such construction forming a chamber 23 in the outer lower portion of the container, said chamber serving as a reservoir for a supply of liquid lubricant.

Apertures 24 are formed through the top of partition 22 and the upper portion of end wall 21 in order to permit a supply of liquid lubricant to be readily delivered to the chamber 23.

Formed through the lower portion of the outer one of the bearing ribs 16 and establishing communication between the bottom of the space between the bearing ribs and the chamber 23 are apertures 25 which permit the liquid lubricant to pass from the reservoir into the space between said bearing ribs, which last mentioned space is filled with suitable fibrous material 26, preferably waste.

Positioned beneath the body of the container and at a point near the center thereof is a transversely disposed curved plate 27, the same serving as a supporting yoke for said container and the end portions of this yoke are notched as designated by 28 so as to engage studs 29 which latter are seated in and project downwardly from the underside of the container. This supporting yoke is curved to conform to the curvature of the bottom of the container and the ends of said yoke terminate at points immediately adjacent to the inner faces of the side walls of the journal box 10, and in such positions, said ends serve as stops to engage against either side wall of the journal box and maintain the container in proper operative position beneath the journal.

The central portion of the yoke 27 is enlarged to form a bearing disk 27a and interposed between said disk and the bottom of the journal box is a compression spring 30. This compression spring normally exerts upward pressure against the container through the yoke 27 and thus the upper surfaces of the bearing ribs 16 are maintained in constant contact with the end portions of the journal 12, it being the intention that this contact be such as to provide practically oil tight joints between said bearing ribs and the surface of the journal.

By virtue of the fact that the yoke is supported upon a single spring and the ends of said yoke have pivotal connections with the container 15, the latter will readily yield to any slight movement which the journal may have longitudinally, transversely or vertically with respect to the journal box, and at the same time, the bearing ribs will be maintained against the surface of the journal.

The continuous rotary movement of the journal in one direction will, of course, tend to rotate the container in the same direction, but such movement is prevented by the engagement of the ends of the supporting yoke against the side walls of the journal box.

Liquid lubricant from the reservoir 23 passes through apertures 25 and by capillary attraction, said liquid lubricant passes through the entire body of fibrous material 26 located between the bearing ribs 16 and as said fibrous material contacts with practically the entire lower half of the surface of the journal, the latter will be maintained in an oil bath with the result that the entire journal is continuously and uniformly lubricated.

In the modified construction illustrated in Figs. 4 and 5, the container 31 is similar to the construction of the container 15 just described, in that it is provided near its ends with bearing ribs 32, which are adapted to engage the end portions of the journal and formed in the outer end of the container 31 is an oil reservoir 33.

A transversely curved partition 34 is formed between the bearing ribs 32 a short distance above the bottom of the container, thus forming a liquid lubricant chamber 35 in which is loosely mounted a longitudinally disposed roller 36. The sides of this partition 34 do not connect with the sides of the container 31. Therefore, the liquid lubricant within the chamber 35 is free to

discharge over the side edges of said partition into the space above the latter.

Positioned within the space above the partition and between the bearing ribs 32 is a body 37 of fibrous material, preferably waste, the same contacting directly with and thereby delivering liquid lubricant to the surface of the journal. Apertures 38 connect the lower portion of the reservoir 33 with the chamber 35 and at the opposite end of the container apertures 39 connect said chamber 35 with the pocket 40 which is formed between the inner one of the bearing ribs 32 and the inner end wall of the container. This container is mounted on a transversely disposed yoke 41 and the latter is yieldingly supported upon a compression spring 42.

In this form of device, the operation depends upon the momentum of the roller 36, which momentum is the result of jerking movements imparted to the journal box while the car upon which it is located is being started or stopped, and as the roller travels transversely in either direction through the chamber 35, a small quantity of liquid lubricant will be forced from in front of the roller upwardly over the corresponding edge of the partition 34 with the result that the fibrous material located on said partition will be maintained in a saturated condition and the lubricant will in turn be delivered directly onto the surface of the journal.

In the modified construction illustrated in Figs. 6 and 7, the container 43 is provided near its ends with bearing ribs 44, the same performing the same functions as the bearing ribs 16 previously described, and formed in the outer end of the container is a liquid lubricant reservoir 45.

Extending from an oil receiving pocket 46 at the inner end of the container through the bottom of the latter is a passageway 47, the bottom of which is inclined and the outer end of said passageway communicates with the lower portion of chamber 45. Located in this passageway is a suitable check valve 48 arranged so as to prevent the flow of liquid lubricant inwardly through said passageway and into the pocket 46. The space between the bearing ribs 44 is filled with fibrous material 49, such as waste, the same engaging directly against the surface of the journal.

Where this form of device is used, the outer end of the journal is provided with a grooved cap or disk 50 and loosely mounted in the groove thereof is a chain 51, the same extending downward into the bottom of reservoir 45. Positioned on the outer end of the container in this form of device and directly over the grooved disk 50 is a cap 52. Hinged to the sides of the container and near the outer end thereof are inclined plates 53, the inner ends of which bear directly against that portion of the disk 50 to the inside of the groove therein, said plates performing the functions of scrapers to remove the oil which may be carried upward on the surface of said disk 50.

Fixed to the upper portions of the sides of the container 43 and extending inwardly from the outer one of the bearing ribs 44 are drain plates 54, the same terminating a short distance from the inner one of the bearing ribs 44 and these drain plates incline gradually downward toward their inner ends. This form of container is positioned on a yoke 55 and said yoke is yieldingly supported by a compression spring 56. In this form of device, the oil saturated body of fibrous material 49 contacts with the surface of the journal and said fibrous material is supplied with oil from the reservoir 45, said oil being carried upward by chain 51 during the rotation of the axle and journal, a portion of which oil passes onto the inner portion of disk 50 and is scraped therefrom by the plates 53 and said oil passing from said plates onto the inclined drain plates 44 and discharging from the lower ends thereof directly into the pocket or space between the bearing ribs 44.

The check valve 48 prevents the oil from passing inwardly through passageway 47 and into the pocket 46 when the journal box is elevated and tilted as is the case where the wheels are passing around a curve, the outer rail of which is higher than the inner rail.

While I have shown and described the lubricating device as being particularly intended for use in connection with the journals of car axles, it will be understood that with slight modifications, the same construction can be advantageously employed in all bearings for shafts, journals, trunnions and the like.

A lubricating device of my improved construction is comparatively simple, can be readily combined with the prevailing and standard types of journal boxes, and provides simple and efficient means for imparting an oil bath to that portion of the journal which engages the brass or journal bearing.

It will be readily understood that minor changes in the size, form and construction of the various parts of my improved construction, can be made and substituted for those herein shown and described, without departing from the spirit of my invention, the scope of which is set forth in the appended claims.

I claim:

1. In a lubricating device for car axle journals, a container adapted to be posi-

tioned in a journal box beneath the journal of the axle, bearing ribs on said container near the ends thereof, the space between which bearing ribs is adapted to contain liquid lubricant and fibrous material, there being a pocket formed at the inner end of said container, which pocket is adapted to receive lubricant which may overflow the bearing rib near the inner end of the container, and yielding pressure means for exerting upward pressure on said container to hold the bearing ribs thereon in contact with the journal.

2. In a lubricating device for the journals of car axles, a container adapted to be positioned in a journal box beneath the journal, bearing ribs on said container near the ends thereof, which ribs are adapted to engage the journal, the space between which ribs is adapted to contain liquid lubricant and fibrous material, a lubricant reservoir at the outer end of the container, there being communication between the lower portion of the reservoir and the space between the ribs and there being a pocket formed in the container at the inner end thereof and adapted to receive lubricant which may overflow the inner one of the bearing ribs.

3. In a lubricating device for the journals of car axles, a container adapted to be positioned in a journal box beneath the journal, bearing ribs on said container near the ends thereof, which ribs are adapted to engage the journal, the space between which ribs is adapted to contain liquid lubricant and fibrous material, a lubricant reservoir near one end of the container, there being communication between the lower portion of the reservoir and the space between the ribs, there being a pocket formed at the inner end of the container for receiving lubricant which may overflow the inner one of the bearing ribs, and yielding pressure means for exerting upward pressure on the container and for maintaining the ribs in contact with the journal.

4. In a lubricating device for the journals of car axles, a container adapted to be positioned in the journal box beneath the journal, bearing ribs on said container, which ribs are adapted to engage the surface of the journal, a lubricant reservoir at the outer end of the container, an overflow lubricant pocket at the inner end of said reservoir, a yoke positioned beneath the container and having pivotal connection therewith, and yielding pressure means arranged beneath and bearing upon said yoke.

5. In a lubricating device for the journals of car axles, a container adapted to be positioned beneath a journal in a journal box, there being a liquid lubricant and waste compartment in the bottom of said container, there being a liquid lubricant reservoir near one end of said container and there being an overflow lubricant pocket formed at the opposite end of said container.

6. In a journal lubricating device, a container adapted to be positioned beneath a journal, there being a liquid lubricant and waste compartment in the bottom of said container, a lubricant overflow pocket at the inner end of said container, and there being an outlet leading from said overflow pocket through the bottom of the container.

7. In a journal lubricating device, a container adapted to be positioned beneath a journal, there being a liquid lubricant and waste compartment in the bottom of said container, a lubricant overflow pocket at the inner end of said container, there being an outlet leading from said overflow pocket through the bottom of the container, and a valve for controlling the discharge of liquid lubricant from said passageway.

8. In a lubricating device of the class described, a container adapted to be positioned beneath a journal, there being a liquid lubricant and waste compartment in the bottom of said container, bearing ribs at the ends of said compartment, there being a liquid lubricant reservoir formed near one end of the container, which reservoir has communication with the compartment between the bearing ribs and there being a liquid overflow pocket formed at the inner end of said container.

9. In a lubricating device of the class described, a container adapted to be positioned beneath a journal, there being a liquid lubricant and waste compartment in the bottom of said container, bearing ribs at the ends of said compartment, there being a liquid lubricant reservoir formed near one end of the container, which reservoir has communication with the compartment between the bearing ribs, there being a lubricant overflow pocket formed at the inner end of said container, said pocket being provided with an outlet, and yielding pressure means bearing against said container for holding the bearing ribs thereof in contact with the journal.

10. In a lubricating device of the class described, a container adapted to be positioned beneath a journal, bearing ribs on said container near the ends thereof, which ribs extend upwardly on the sides of the container so as to fit snugly against the underside of the journal, there being a liquid lubricant reservoir near one end of said container, which reservoir has communication with the space between the bearing ribs and the opposite end of said container being provided with a pocket adapted to receive lubricant which may overflow the inner one of the bearing ribs.

11. In a lubricating device of the class de-

scribed, a container adapted to be positioned beneath a journal, bearing ribs on said container near the ends thereof, which ribs extend upwardly on the sides of the container so as to fit snugly against the underside of the journal, there being a liquid lubricant reservoir near one end of said container, which reservoir has communication with the space between the bearing ribs, the opposite end of said container being provided with a pocket adapted to receive lubricant which may overflow the inner one of the bearing ribs, and yielding pressure means engaging said container for maintaining the bearing ribs in engagement with the journal.

In testimony whereof I hereunto affix my signature in the presence of two witnesses, this 27th day of November, 1916.

JAMES J. HENNESSY.

Witnesses:
M. P. SMITH,
M. A. HANDEL.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."