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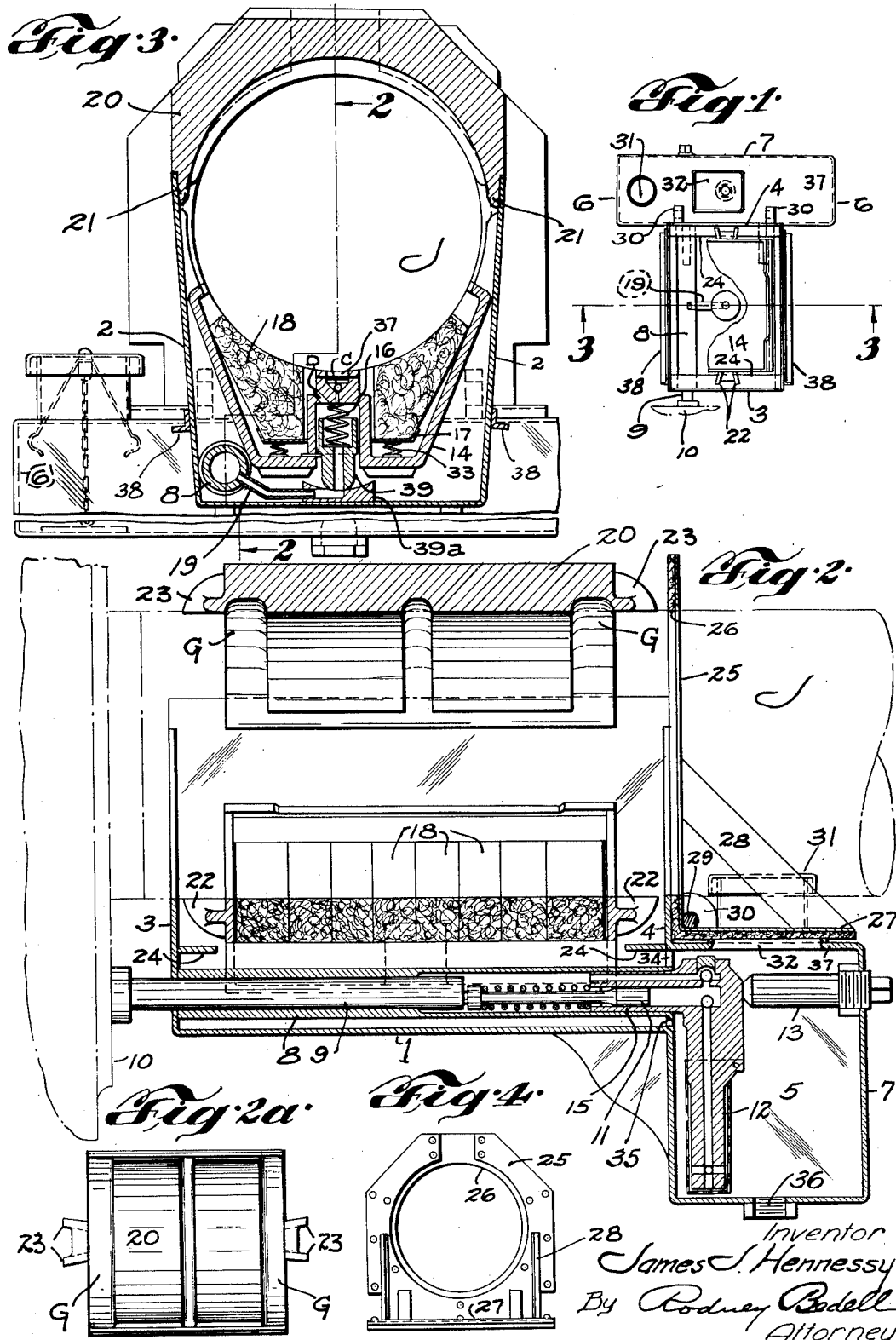
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RAILWAY JOURNAL LUBRICATOR

Filed Aug. 22, 1931

2 Sheets-Sheet 1



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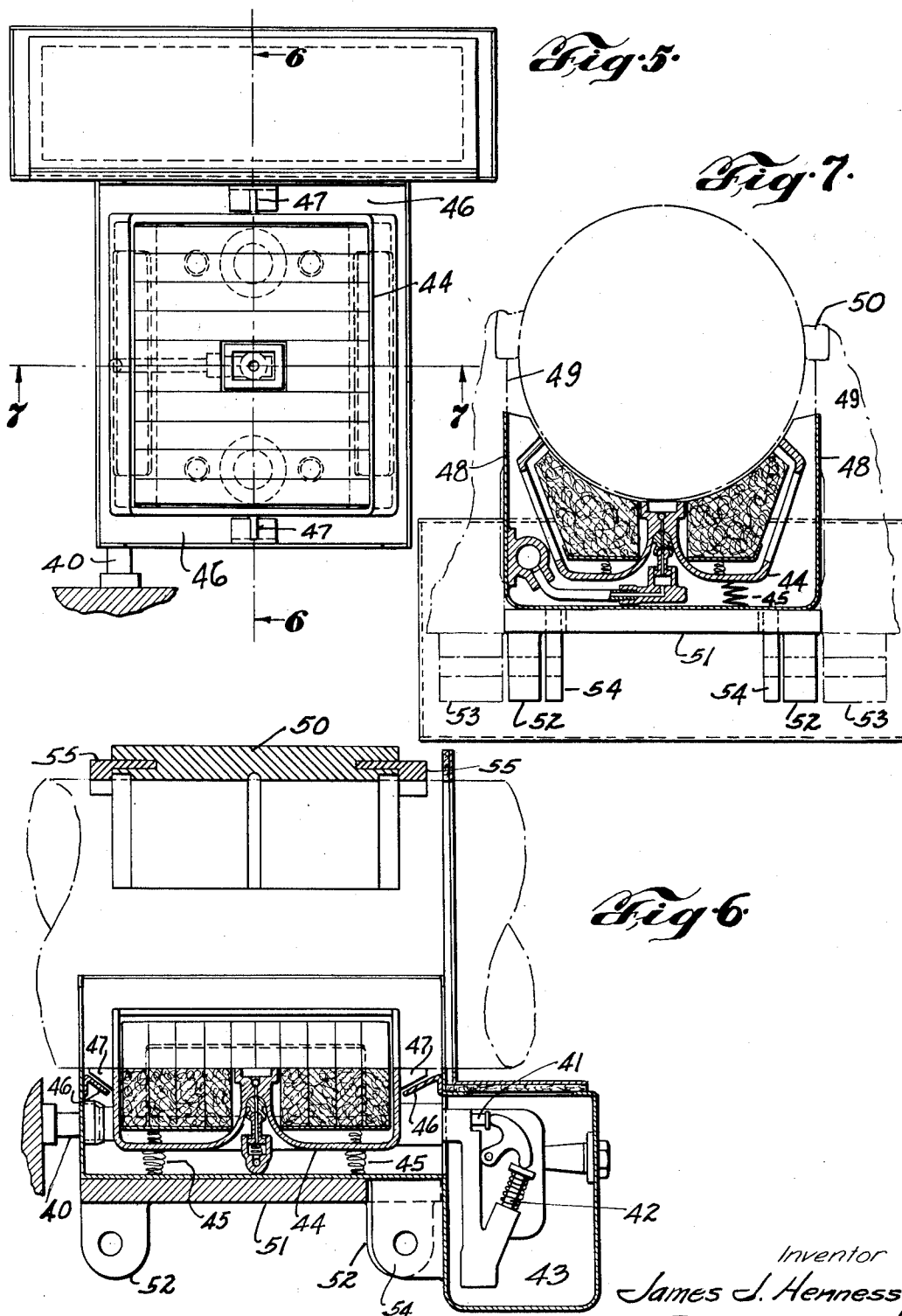


Fig. 6

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RAILWAY JOURNAL LUBRICATOR

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Application August 22, 1931, Serial No. 558,719

12 Claims. (Cl. 308—84)

The invention relates to lubricating devices applied to railway journals and is of the general type illustrated in Patent 1,794,457, issued to me March 3, 1931, in which the lateral movement of the axle, journal and wheel relative to the driving box, and cellar therein, is utilized to operate a pump for pumping oil from a reservoir in the cellar to the journal or a distributor applied thereto.

One object of the invention is to provide a light-
er device than has been used heretofore thereby
facilitating its application to the journal and
journal box and its removal therefrom.

Another object is to increase the capacity for
storing lubricant.

Another object is to avoid the escape of lubri-
cant from the lubricator along the surface of the
journal.

Another object is to improve the lubricating
function of a device of the type described when
the same has a substantial quantity of water ap-
plied to it.

Another object is to provide a pump assuring
adequate supply of oil to the journal under un-
favorable pumping conditions and providing for
return to the reservoir of surplus oil pumped un-
der favorable conditions.

Another object is to increase the capillary feed
of oil to the journal.

Another object is to provide a pump carried by
the cellar body and removable therefrom for in-
spection and cleaning.

These and other detail objects of the invention
are attained by the structures shown in the ac-
companying drawings, in which—

Figure 1 is a top view of the body of the lubri-
cator and a portion of the distributor provided
therein.

Figure 2 is a vertical longitudinal section
through the lubricator and a bearing mounted
on the journal, which is shown in dot and dash
lines, and is taken on the line 2—2 of Figure 3.

Figure 2a is a bottom view of the journal bear-
ing.

Figure 3 is a vertical transverse section taken
on the line 3—3 of Figure 1.

Figure 4 is an outer elevation of the end mem-
ber of the lubricator device.

Figure 5 is a top view of a modified lubricator
device.

Figure 6 is a longitudinal vertical section taken
on the line 6—6 of Figure 5.

Figure 7 is a transverse vertical section taken
on the line 7—7 of Figure 5.

The engine truck journal lubricator shown in

Figures 1 to 4 comprises a cellar including a body
portion having a bottom wall 1, side walls 2 and
end walls 3 and 4. The cellar includes a box-like
reservoir chamber 5 projecting beyond one end
of the body portion and below the bottom wall 1
thereof. The side walls 6 and the outer wall 7
of chamber 5 extend upwardly above the level
of the body bottom wall 1 and the body end wall
4 forms the inner end wall of the chamber 5.

A hollow member 8, disposed longitudinally of
the body portion and applied to one of the side
walls 2 near the bottom thereof, receives the con-
tact rod 9, engaging the wheel hub 10, and forms
a housing for the pump cylinder 15 having a piston
11 which is reciprocated by rod 9.

The pump cylinder is inserted through a suit-
able opening in wall 4 and has an intake arm 12
which extends downwardly towards the bottom
of chamber 5 and is held in position by an adjust-
able stud 13 mounted in the outer wall 7 of cham-
ber 5.

The sub-cellar 14 has a central column 14a pro-
jecting from its bottom wall which receives a
spring 16 and a sleeve 39 whereby the sub-cellar
is yieldingly supported on the block 39a of the cel-
lar. The engaging faces of sleeve 39 and block
39a are concave-convex so that the sub-cellar
may tilt to the position in which its upstanding
end walls will contact with the journal J.

The upper edges of the side walls of the sub-
cellar are recessed intermediate their ends to pro-
vide free passage of oil with the upwardly moving
side of the journal to the bearing 20 which is un-
dercut or rounded to facilitate the intrusion of
the oil between itself and the journal.

The bottom of sub-cellar 14 extends downward-
ly alongside of member 8 into the lowermost por-
tion of the body of the cellar. Springs 33 in sub-
cellar 14 yieldingly support a pan 17 in which are
seated a plurality of pads 18 of felt or other suit-
able material having capillary properties.

A conduit 19 leads from housing 8 into block
39, the passage being continued through the block,
hollow sleeve 39a, and discharge passage 37 in
the upper end of column 14a to the face of the
journal and being provided with a ball check C.
A by-pass D leads from the interior of column 14a
through the wall thereof whereby oil in excess of
that passing by the ball check will return to the
reservoir.

The bearing 20 of brass or similar material rides
on journal J and extends down the sides of the
same with its lower edges overlapping the inside
faces of cellar walls 2, as indicated at 21, so as
to prevent the escape of oil over the sides of the

cellar. Sub-cellar 14 and bearing 20 are provided with diverging wings 22 and 23, respectively, which serve to wipe oil on the journal beyond the end of the sub-cellar or the bearing and return it to the ends of these members until it runs down into the reservoir. Grooves G render the effective length of the bearing substantially less than that of the sub-cellar and this increases the efficiency of wings 22 and 23.

Horizontal flanges 24 extend inwardly from each end wall of the cellar at about the level of the top of chamber 5 and serve as anti-splash plates to reduce loss of lubricant which might otherwise splash over the edges of walls 3 and 4.

The lubricator is provided with an inner end member serving as an oil baffle and including an upright plate 25 having an opening for surrounding journal J and, preferably, lined with a layer 26 of felt or similar packing material to engage the cellar end wall 4 and the ends of side walls 2. The end member also includes a cover 27, similarly lined, for an opening 32 in the top wall 37 of chamber 5 and one or more diagonal braces 28 extending between plate 25 and cover 27 at points spaced from the corner formed between them. The end member is held in place by a pin 29 extending through lugs 30 provided on end wall 4 and projecting through end plate 25. The pin engages the corner portion of the end member and its removal permits the end member to be slid along the axle away from the cellar. Upon removal of stud 13, the intake arm 12 and associated parts may be rotated and the pump cylinder withdrawn from the lubricator for cleaning, etc. The reservoir is normally filled through a spout 31 at one side of cover 27.

A substantial opening 34 in the upper portion of wall 4 immediately beneath flange 24 provides an overflow passage for oil leading from the cellar to chamber 5. A restricted opening 35 just above the bottom wall 1 of the cellar provides a drain for any water in the lubricator whereby the water may escape from the body portion to chamber 5 and may be drained from the latter through a plug inserted at 36. Chamber 5 may be provided with an automatic water drain as described in my Patent 1,748,982, issued March 4, 1930.

In some previous structures, the introduction of water into the lubricator from a hose, rain or otherwise would interfere with its operation as the water would be pumped up into the distributor only to flow back immediately to the reservoir and again enter the pump, the oil floating on top of the water at all times and being thereby excluded from the pump. The present construction avoids this result as the partition between chamber 5 and the lower portion of body 1 temporarily traps excess water although the overflow opening 34 permits the oil to circulate freely and the opening 35 prevents undue accumulation of water in the body.

The cellar may be supported in any approved manner and one form of support is indicated by the angles 38 welded to the sides of the cellar and mounted upon suitable carrying elements in the journal box (not shown).

Preferably, the cellar body and reservoir are formed of relatively light sheet metal parts cut and welded together and the housing for the pump cylinder and contact rod is formed separately and welded to the side wall of the cellar. This facilitates the application and removal of the lubricator as the device is much lighter than those previously used which included cast body portions.

The body and reservoir chamber, pump and distributor constitute a self-contained unit which will continue to function irrespective of the presence or secure fit of the detachable end member 25—27. All of the features described contribute to avoiding the loss of oil due to the pumping of a larger quantity than is required for lubrication at any one time. Some of these features may be included in the heavier construction previously used but the sheet metal body is especially adapted to embody these features without any disadvantage because of lighter construction.

In the modification illustrated in Figures 5, 6 and 7, the invention is shown applied to a driving wheel journal and includes most of the features in the structure previously described. A somewhat different type of pump is shown in which the contact rod 40 and a continuation 41 thereof extend through the cellar and the pump piston 42 is located in the lower portion of the reservoir 43 as described and claimed in my co-pending application Serial Number 403,027, filed October 28, 1929. The sub-cellar 44 is supported by springs 45 and is positioned between flanges 46 on the end walls of the body of the collar, these flanges being inclined downwardly as shown to underlie the wiping wings 47 on the ends of the sub-cellar.

The cellar side walls 48 are preferably received in recesses formed in the driving box walls 49 so that any oil discharged from beneath the bearing 50 will flow down the driving box walls into the interior of the cellar instead of escaping over the side walls of the cellar and being lost.

The cellar is supported in the usual manner by a bridge 51 having depending ears 52 receiving suitable bolts carried by the usual lugs 53 on the driving box. Ears 54 depending from the bottom wall of the cellar also receive these bolts to hold the cellar in position.

The bearing 50 is provided with wiping wings 55 corresponding to the wings 23, shown in Figure 2, but formed separately from the bearing and having portions inserted in the bearing.

Obviously, other variations in structure could be accomplished without departing from the spirit of the invention and the exclusive use of all such modifications as come within the scope of the appended claims is contemplated.

What is claimed is:

1. In a railway journal lubricator, a cellar including a body portion, a pump cylinder mounted on one side thereof, an oil reservoir at one end thereof, a sub-cellar movable therein with its bottom beneath the level of the upper portion of said cylinder and with its side walls extending upwardly for contacting with the surface of a journal to be lubricated, and an oil conduit extending laterally from said cylinder and through said sub-cellar.

2. In a railway journal lubricator, a cellar including a body portion having upright side and end walls, there being a lubricant reservoir extending outwardly and downwardly from one of said end walls and extending above the bottom of said cellar, said last mentioned end wall constituting an upright partition for restraining the passage of liquid from said cellar to said reservoir, a pump device including an intake arm extending downwardly in said reservoir and a cylinder extending through said end wall into said body portion, said reservoir including a top wall integral with the side walls of the reservoir and with said cellar end wall and provided with a restricted opening and said intake arm being ro-

tatable about said cylinder to permit removal of said pump device through the opening in said top wall.

3. In a railway journal lubricator, a cellar including a body portion having side walls arranged to receive a journal between them and having an end wall arranged to fit beneath said journal, there being a lubricant reservoir extending outwardly and downwardly from said body portion, an end member comprising an upright plate, arranged to surround said journal and a cover for said reservoir extending outwardly from said plate, and means for detachably securing said end member to said body portion with said end plate contacting with the adjacent ends of said side walls.

4. In a railway journal lubricator, a cellar including a body portion having side walls arranged to receive a journal between them and having an end wall arranged to fit beneath said journal, there being a lubricant reservoir extending outwardly and downwardly from said body portion, an end member comprising a cover for said reservoir and an upstanding plate thereon adapted to surround said journal, said plate being lined with suitable packing material and fitting against the ends of said side walls, there being a diagonal brace between points on said cover and plate spaced from the corner formed by them, and means for detachably securing said end member in position.

5. A structure as described in claim 4 in which the securing means includes an ear on said cellar projecting through said end member, and an element interengaging with said ear and said member.

6. In a railway journal lubricator, a cellar including a body portion and an oil reservoir, said body portion having upstanding side and end walls and being arranged to retain lubricant throughout its length and width, a sub-cellar positioned above the bottom of said body portion and including oil distributing elements for application to a journal, the ends of said sub-cellar being spaced substantially from the end walls of said body portion, a pump for supplying said distributing elements with oil from said reservoir, there being flanges extending inwardly from the end walls of said body portion towards said sub-cellar to prevent undue splashing of oil in said body portion and the escape of oil between the ends of said sub-cellar and cellar and said journal.

7. In a railway journal lubricator, a cellar having a body portion for receiving a journal and arranged to retain lubricant, and a reservoir at one end thereof, said body portion and reservoir having a common partition wall extending above the bottom of said body portion, there being a horizontal flange on the body side of said wall above the bottom of said body portion to prevent the splashing of lubricant from said body portion over the top of said partition wall.

8. In a railway journal lubricator, a cellar having a body portion and a lubricant reservoir extending outwardly and downwardly therefrom, there being a transverse partition wall between said body portion and reservoir, a sub-cellar in said body portion provided with lubricant distributing means, the lower portion of said sub-cellar extending below the level of the top of said partition wall, and a pump for supplying oil from said reservoir to said distributing means, there being an overflow hole in said partition above the bottom of said sub-cellar and below the top of said reservoir.

9. A structure as described in claim 8 in which a restricted hole is present in said partition just above the bottom wall of said body portion to provide for slow drainage of water from said body portion to said reservoir.

10. In a railway journal lubricator, a cellar including a body portion and a reservoir both formed of relatively light sheet metal walls, a separately formed pump device including a housing member secured to one of the side walls of said body portion, and an intake arm extending in said reservoir, a separately formed sub-cellar movably mounted in said body portion at one side of said pump device, and means for discharging lubricant from said device to said sub-cellar and from thence to a journal to which the lubricator is applied.

11. In a railway journal lubricator, a cellar having a body portion and a lubricant reservoir extending outwardly and downwardly therefrom, there being a transverse partition wall between said body portion and reservoir, a sub-cellar in said body portion provided with lubricant distributing means, the lower portion of said sub-cellar extending below the level of the top of said partition wall, and a pump for supplying oil from said reservoir to said distributing means, there being a restricted opening in said partition just above the bottom wall of said body portion to provide slow drainage of water from said body portion to said reservoir.

12. In a railway journal lubricator, a lubricant cellar, a sub-cellar supported above the floor of said cellar, a lubricant distributor carried by said sub-cellar, a lubricant reservoir adjacent said cellar, a lubricant restraining partition between said cellar and reservoir, there being a passage from said cellar to said reservoir above the cellar floor to permit overflow of lubricant in said cellar to said reservoir, and means for conducting lubricant from said reservoir through said partition, sub-cellar and distributor to said cellar floor adjacent said partition, said partition functioning to temporarily restrain return to said reservoir of lubricant collected in said cellar to permit settling of water and other foreign matter in the collected lubricant.

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