

C. B. MOORE.

LOCOMOTIVE JOURNAL LUBRICATOR.

APPLICATION FILED NOV. 12, 1903. RENEWED FEB. 15, 1909.

1,046,002.

Patented Dec. 3, 1912.

4 SHEETS—SHEET 1.

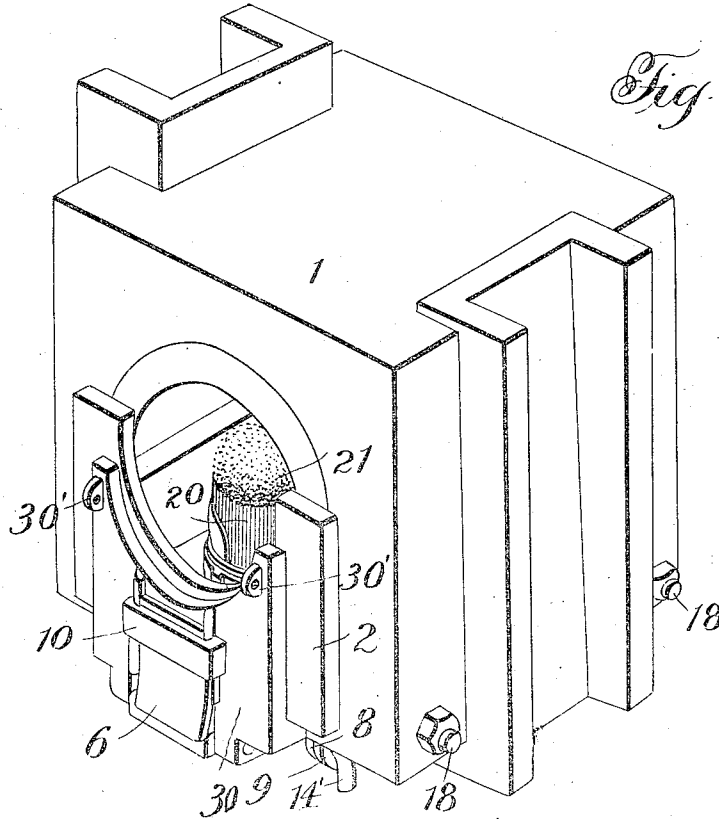


Fig. 1.

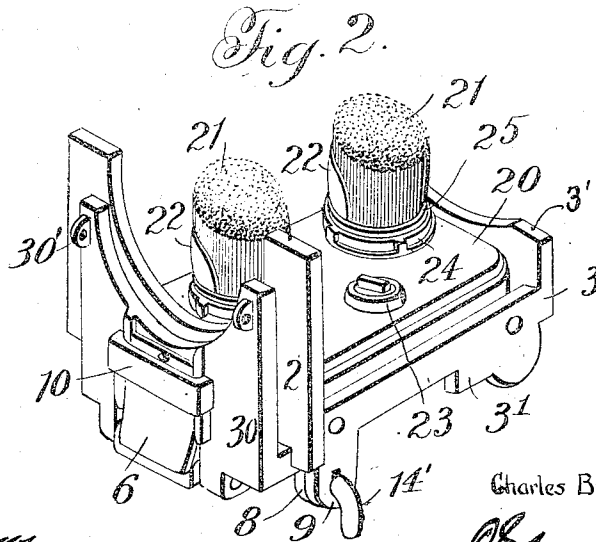


Fig. 2.

Witnesses

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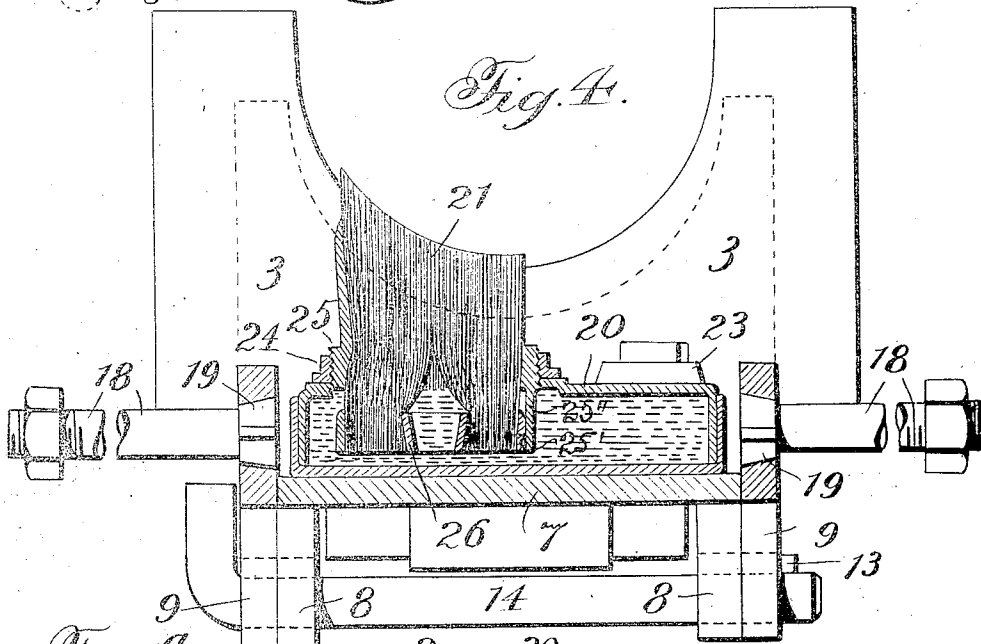
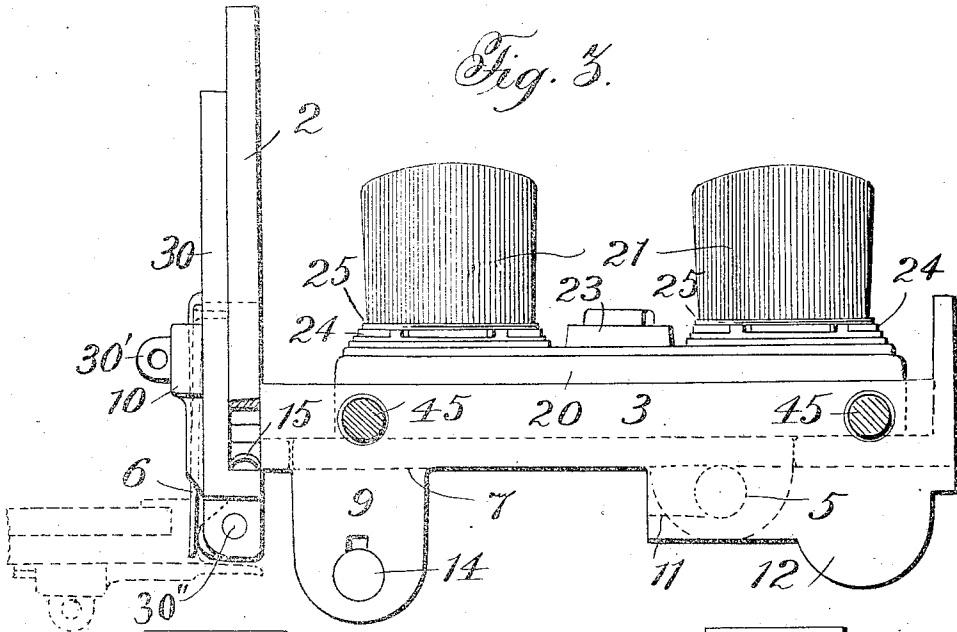


Fig. 1a

Witnesses

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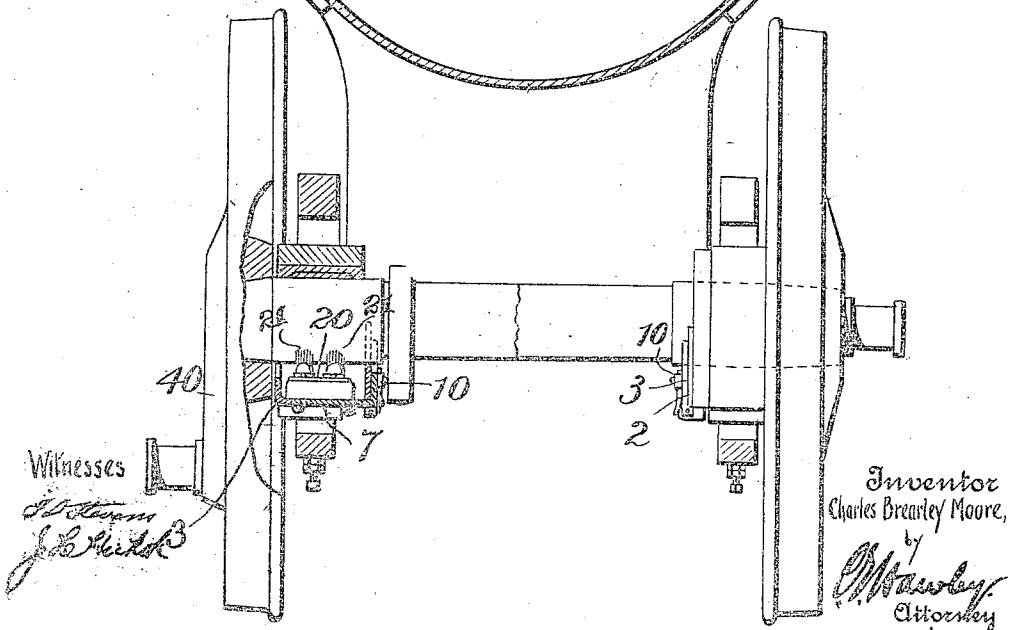
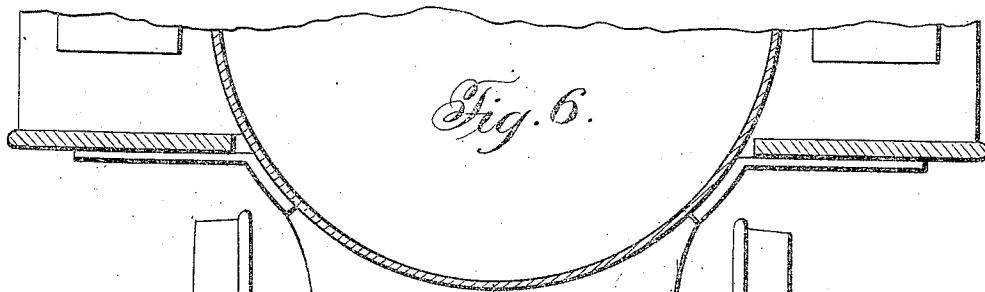
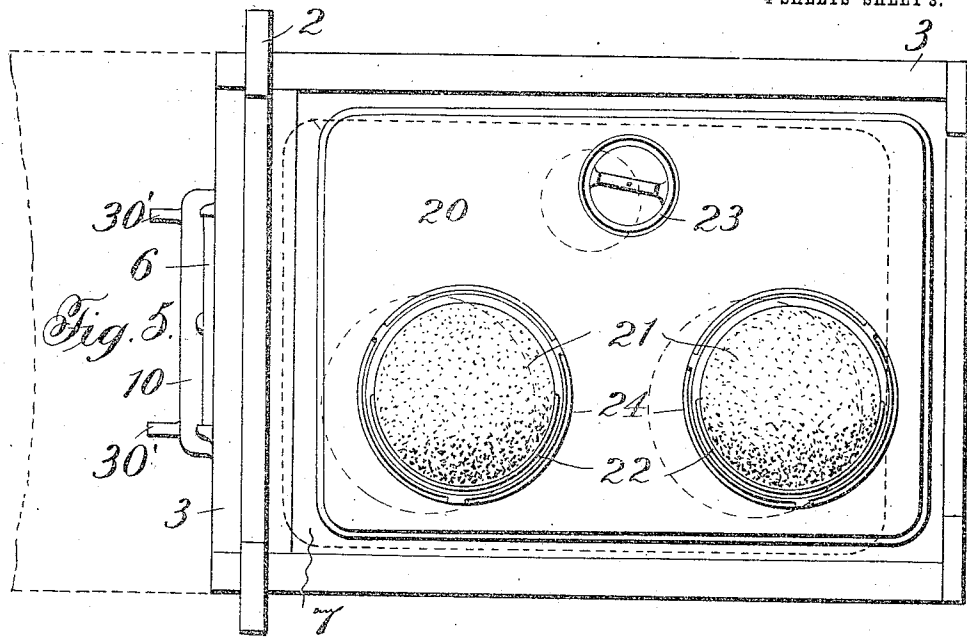
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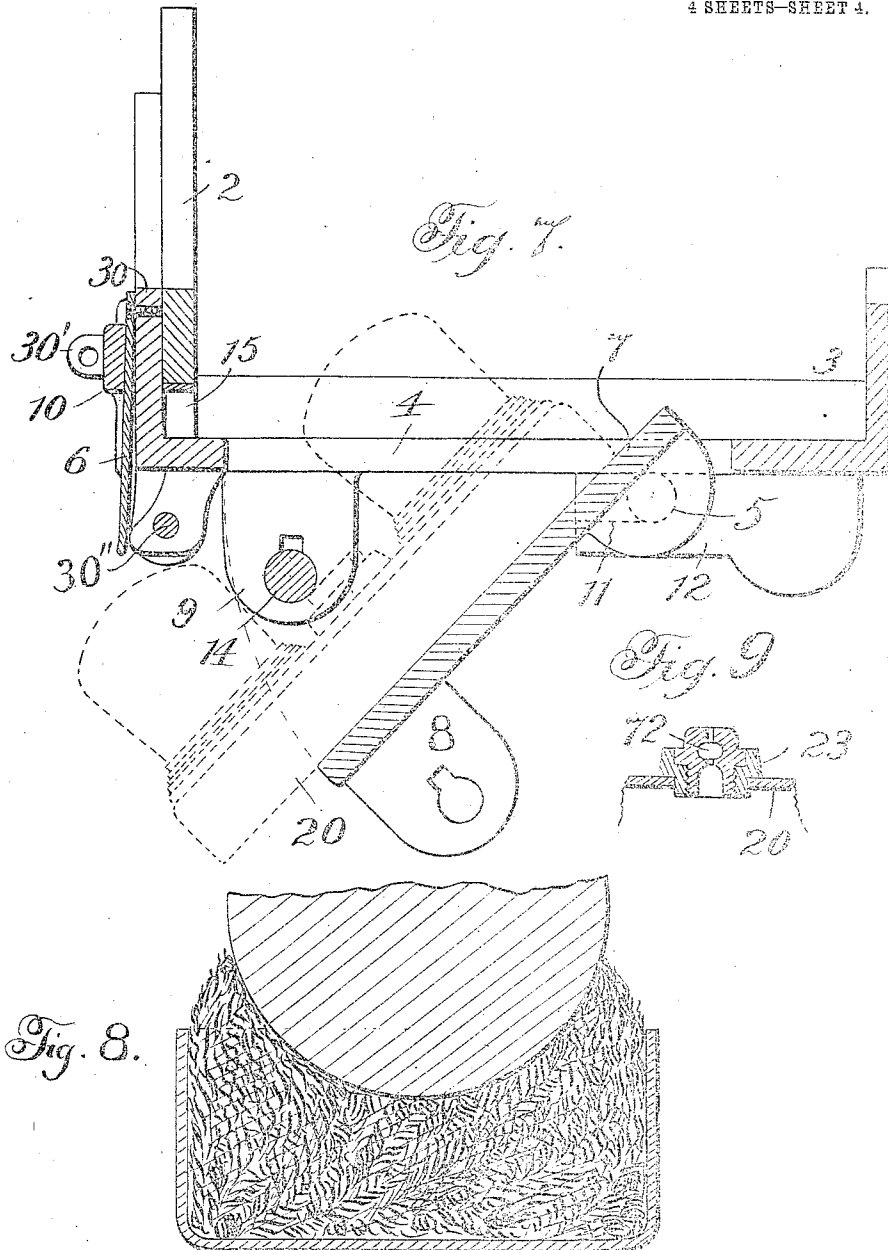
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WITNESSES

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J. L. Pickok

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Chas. B. Moore
by *Chas. B. Moore*

UNITED STATES PATENT OFFICE.

CHARLES BREARLEY MOORE, OF LAKE FOREST, ILLINOIS, ASSIGNOR TO AMERICAN LOCOMOTIVE EQUIPMENT CO., OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

LOCOMOTIVE-JOURNAL LUBRICATOR.

1,046,002.

Specification of Letters Patent.

Patented Dec. 3, 1912.

Application filed November 12, 1903, Serial No. 180,393. Renewed February 15, 1909. Serial No. 478,043.

To all whom it may concern:

Be it known that I, CHARLES BREARLEY MOORE, a citizen of the United States, residing at Lake Forest, in the county of Lake and State of Illinois, have invented certain new and useful Improvements in Locomotive-Journal Lubricators, of which the following is a specification.

This invention relates to means for lubricating the journals of locomotives and the like, and has particular reference to improvements whereby such journals may be reliably and economically lubricated, and the lubricators made easy of access for inspection, renewal and replenishment.

My invention has special reference to means for lubricating the journals of the large-driving and truck axles of locomotives. It is well-known that fully sixty per cent. of locomotive failures result from the insufficient lubrication of these journals, and that delays are frequently occasioned because of the inaccessibility of the ordinary lubricators and the difficulties attendant upon the removal of an old-style lubricator from a journal-box.

The object of my invention is to provide a lubricating device that may be readily placed in or removed from a locomotive journal-box, and which may be depended upon to uniformly and reliably lubricate the journal and thereby prevent its becoming heated.

My invention includes and embraces, first; a support or shelf that takes the place of the usual waste-cellar in the lower part of the journal-box. This, to all intents and purposes, becomes a permanent part of the journal-box, and has sufficient strength to prevent either the opening or the closing of the box about the journal. Second, an oil receptacle that rests on the shelf or support, and which is preferably capable of considerable vibration thereon in all directions. This contains the oil, which is supplied to the journal by any suitable means, such as waste, or the brush that is hereinafter described. Third, an end gate or a drop-bottom, or both, attached to and preferably a part of said shelf or support, to be lowered when it is desired to remove or insert an oil-box or pan. Fourth, a bristle-brush, above referred to, which has its lower end submerged in the oil in said receptacle or

pan, while its upper end is in resilient contact with the journal, to flow the oil thereon. Fifth, a peculiar attachment between the brush and the pan, which effectually closes the opening around the brush and also provides for the vertical adjustment of the brush. Sixth, a peculiar construction of the brush, the same having to do with the securing of the brush-bristles and the admission of oil thereto. Seventh, a dust-guard that is used in connection with said end gate, to exclude dust from the space beneath the journal in the journal-box; and my invention consists, also, in additions and attachments to the foregoing principal features and elements of the invention, all as hereinafter described and particularly pointed out in the claims.

The invention will be more readily understood by reference to the accompanying drawings, forming a part of this specification, and in which:—

Figure 1, is a perspective view of the journal box equipped with a lubricator embodying my invention; Fig. 2, is a perspective view of the lubricator, removed from the journal-box; Fig. 3, is an enlarged side elevation of the lubricator; Fig. 4, is a vertical section thereof, through the outer brush, looking toward the end gate; Fig. 1^a, is a sectional detail of the end gate, showing the spring that presses the dust-guard upward against the journal; Fig. 5, is a plan view of the lubricator; Fig. 6, illustrates the employment of the lubricator upon the main and rear driving axles of a locomotive; Fig. 7, is a vertical longitudinal section of the lubricator, showing the bottom dropped, for the removal of the lubricator proper; Fig. 8, illustrates a lubricator-pan filled with waste, to be placed on the shelf or support; and Fig. 9, is a sectional detail of the filling-cap or plug on the oil-pan.

As shown in the drawings, 1 represents a locomotive journal-box provided with the usual wedges and bearing-brass. The box is open at the bottom, to receive the lubricator. 3 is the shelf or support fitted snugly in the bottom of the box and secured by the short cellar-bolts, 18, which have tapered heads, 19, fitted in the sides of support, 3, and held against rotation by small keys, see Fig. 4. The cellar-bolts do not extend from

side to side of the journal-box, as usual, but the heads 19 are countersunk in the side walls or flanges 3, where they are partially held in position or locked by the lubricator box or pan when the same is in place. The support, 3, is like a trough with a flat bottom. At the outer end it has a vertical stop lug or flange, 3', while at the inner end is a drop gate, 30. This gate is hinged on support, 3, by a pin, 30'', and is held in either a vertical or horizontal position by a flat spring, 6, having its end secured beneath an integral staple, 10, on the gate, 30. 30', 30'', are eyes on the gate to receive a hook by which the gate may be opened, that is, turned down to a horizontal position. On the inner side of the gate, 30, is a dust-guard, 2, made of wood, hard rubber or the like, or metal if desired. This has a recess in its upper part conforming to the bottom of the journal, and the guard is pressed up against the journal by a spring, 15, carried by the gate. The flat bottom of the trough-like shelf 3 contains a large opening, 4, which is closed by a drop-section, 7. The outer end of 7 is provided with trunnion lugs, 5, that enter slots, 11, in the lugs, 12, on the support, 3. The section, 7, is thus removably pivoted on the support, 3. The other end of the section or drop-bottom, 7, is supported by a cross-pin, 14, held in lugs, 9, on the part, 3. The pin preferably passes through like lugs, 8, on 7, and all of the lugs have slotted holes to permit the passage of the key-lug, 13, on pin, 14. The pin, 14, has a bent end 14', and this, because of its weight, normally hangs down, so that the lug, 13, does not register with the slot in the lug, 9, and the pin, 14, cannot be removed until its bent end or handle is turned to position shown in Fig. 4. This is done when it is desired to drop the section, 7, and the pin, 14, is pulled out of the lugs, 9.

It is obvious that the section, 7, will be held by slots, 11, and lugs, 5, as long as its lugs, 8, are engaged by the pin, 14. I have in some cases hinged the section 7 upon the support or shelf, but I find that it is preferable to make said section removable from the support, as shown, such construction permitting the part, 7 to be dropped down with the lubricator-pan. This is particularly advantageous when the pedestal brace of the locomotive frame is close to the bottom of the journal-box. A heavy flat spring similar to 6, may be substituted as the holding means for section 7, but is not so reliable. The parts thus far described are for the support and retention of the lubricator proper beneath the journal in the journal-box, and are constructed as shown or substantially as shown, with a view to making the lubricator proper easily accessible. Such part preferably comprises a box or pan, being the receptacle for the oil. This is made of two

sections or parts that are telescoped one into the other and permanently secured in such relation. The pan is considerably smaller than the seat or space therefor on the top of the part, 3, and may therefore slide about therein. It may also vibrate vertically, and all such motions are imparted to the pan by the vibration of the journal-box when the locomotive is in motion. The necessity for and the purpose of this vibration will be explained hereinafter. The top of the box or pan, 20, is provided with one or more holes for one or more of the lubricating brushes, 21, the butts of which enter the pan. The pan is also provided with the filling-cap or plug, 23, the detailed construction of which is shown in Fig. 9, the same being provided with an air-vent, 72.

The brush construction is best shown in Fig. 4, wherein it will be seen that the bristles pass through a ring, 25, and are held in a butt-ring, 25', that is attached to three or more lugs, 25'', on ring, 25. A central ring or bushing, 26, serves to bind the bristles within ring, 25', and affords an opening for the admission of oil to the center of the brush. The slots or openings between the rings, 25 and 25', admit the oil to the exterior of the brush. The ring, 25, is provided with an upper flange or collar, 22, which prevents the bending over of the brush when it is brought in contact with the rotating journal. The top of the pan, 20, is threaded to receive the ring, 25, and 24 represents a locking-nut by which the brush may be secured at different elevations. It will be observed that the upper end of the brush is beveled, that is, the bristles are cut or clipped to conform to the bottom of the journal or shaft to be lubricated. Any number of the brushes may be used according to the length of the pan, but two are usually sufficient. The bristles composing the brush may be tightly bound together, but the brush serves best as a capillary conductor when the bristles are tightly bound at the butt, but are left quite free in the upper portions of the brush. It is obvious that in the event of the loss of the brush lubricator, an ordinary sheet-metal pan filled with waste, as shown in Fig. 8, may be slipped in on the shelf or support.

The operation of the invention is as follows:—The shelf or support is first fastened on the journal-box by means of the short bolts, 18, the lubricator pan being removed at such time. If the device is applied to a main or driving axle journal, the end gate is equipped with a dust-guard and is turned to the vertical position, to avoid the eccentric on the axle, before the shelf is put into place; and the bottom-section, 7, is dropped down for the insertion of the lubricator-pan. In such positions, viz., where the device is applied to the main driving shaft of the

locomotive, and an eccentric is provided thereon adjacent to the inner end of the journal box, it is necessary to insert and remove the lubricator through the lower end of the box and it is obvious that the end gate merely serves the purpose of holding the dust guard in position and furnishing the guide therefor. The dust guard itself at such times provides a closure for the inner end of the box and while the end gate might in this instance be formed integrally with the removable shelf, still for purposes of economical manufacture and interchange of parts, I prefer to construct all of the devices with pivoted end gates. On the other hand, when the device is used in the journal-box of one of the other axles of the locomotive, the drop-section, 7, need not be utilized, as the end gate is, in such cases, left free, and may be pulled down at any time. When a pan equipped with a brush or brushes is placed in the journal-box, its brushes are adjusted so that they will normally make contact with the axle, or substantially so; and capillary attraction will quickly establish an upward flow of oil in the brush. When a locomotive is in motion, the journal will continuously take oil from the brush, and the lubrication of the journal thereby is rendered certain by the pulsating contact established between the brushes and the journal by the vibration of the lubricator beneath the journal and within the lower part of the journal-box. When the brushes are fixed against such vibration, as they may be, less oil will be supplied to the journal. The oil which drips from the journal spreads upon all parts of the pan and its support, and the vibration and reciprocation of the pan may take place without undue wear upon any part.

It is obvious that numerous modifications of my invention, particularly as to the details of its embodiment and use, will readily suggest themselves to one skilled in the art, and I therefore do not confine the invention to the specific construction herein shown and described.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:—

1. The combination, of the locomotive journal and journal-box, with a shelf or support in the bottom of said box and having side lugs or flanges, a lubricator pan resting upon said support, bolts arranged in said lugs or flanges, extending through the sides of the journal-box, partly held in position by said pan and removable from the sides of the journal-box only after the removal of said pan from said support, substantially as described.

2. The combination, of a lubricator with the journal-box the support arranged in the bottom thereof, a drop-section forming a

part of said support and pivoted thereto, and a gravity-lock for said drop-section, substantially as described.

3. A locomotive journal box and journal, in combination with a lubricator pan, a hinged closure for the lower end of said box whereon said pan rests, a lock for said closure, and means closing the ends of the journal box to retain said pan on said closure, substantially as described.

4. The plate or support, in combination with the section 7, separably hinged thereto, a keyed pin provided with a crank end, for holding said section, upon the support, and a lubricator supported by said plate, substantially as described.

5. The combination, of the journal-box with a detachable shelf or support hinged to the lower part thereof, and provided with suitable ends, a closed lubricator-pan arranged for vertical vibration on said support, and a brush or brushes projecting from the top of the pan, in position for engagement with the journal, substantially as described.

6. The combination, of a journal box and journal, with a lubricator therein, a shelf or support having an end flange and removably arranged in the bottom of said box and an end gate pivotally mounted upon said shelf and equipped with a movable dust excluding part, substantially as described.

7. The combination, of a journal box with a lubricator, a shelf or support attached to said box and forming the bottom thereof and provided with a drop bottom section, substantially as and for the purpose specified.

8. A journal box, in combination with a shelf or support arranged in the lower part of the box, a pan of smaller dimensions than the lower part of the box and resting on said support, a lubricating device in said pan, an end gate or pan retaining plate pivoted at the end of said support, a spring for holding it, and a suitable dust guard, substantially as described.

9. In a locomotive journal lubricator, the combination with a journal box, of a horizontal frame arranged in the lower part thereof, said frame being provided with a drop section forming a support for a lubricator, said drop section being pivoted at one end, and a suitable lock for said section, substantially as described.

10. The combination, with a journal box, of a horizontally disposed frame within the lower portion of said box, a drop plate pivotally secured within said frame, and a journal lubricating device thereon, substantially as described.

11. A locomotive journal lubricator comprising an oil receptacle provided with a brush holder, said holder comprising a ring provided with a brush supporting flange, in

combination with a brush composed of bristles extending through said ring, a butt-ring encircling the first named ring, and a bristle spreading device within the lower end of said brush, substantially as described.

12. A locomotive journal box, in combination with a horizontal frame occupying the lower part of said box, and a drop section detachably secured in said frame and lubricating means supported by said drop section, substantially as described.

13. A locomotive journal box, in combination with a suitable lubricating device, a removable frame secured in the lower end of said box and containing an opening of sufficient size to admit said lubricating device from below and means on the frame for closing said opening, substantially as described.

14. A locomotive journal box, in combination with a lubricator supporting plate arranged in the lower part of said box, stud bolts extending from the sides of said plate through the sides of said box and securing the plate therein, a lubricator occupying the lower part of the box above said plate and serving to prevent the withdrawal of said stud bolts, substantially as described.

15. A locomotive journal box, in combination with a lubricating device, a removable frame secured in the lower end of said box, separate stud bolts extending from the sides of said frame through the sides of the box to secure said frame therein, said frame having an opening of sufficient size to admit said lubricator from below, and a plate or section normally closing said opening, substantially as described.

16. A locomotive journal box, in combination with a horizontal plate occupying the lower part of said box, a lubricator supported thereby within the box, a stop at the outer end of said plate, a hinged gate provided at the inner end of said plate, and means normally holding said gate closed, substantially as described.

17. A locomotive journal box, in combination with a suitable lubricating device, a horizontal plate occupying the lower part of said box, an end gate pivoted upon the inner end of said plate, a spring holding said gate closed, and said lubricator being adapted to be removed from said box, when the gate is opened, substantially as described.

18. A locomotive journal box, in combination with a suitable lubricating device, a horizontal frame occupying the lower part of said box and having an opening for the

insertion and withdrawal of said lubricator, a pivotal drop section closing the opening in said frame, said lubricator being normally supported by said frame and section, and means securing said section in such a manner that it may be readily lowered, substantially as described.

19. A locomotive journal box, in combination with a lubricator, a horizontal frame occupying the lower part of said box and having an opening for the insertion and withdrawal of said lubricator, removable means closing the opening in said frame and supporting said lubricator, and a spring pressed vertically movable dust guard section arranged at the inner end of said frame, substantially as described.

20. A locomotive journal box, in combination with a lubricator, a horizontal floor occupying the lower end of said box having an opening for the passage of said lubricator, removable means closing said opening and serving to support said lubricator, a lubricator stop at the outer end of said floor, a horizontally hinged end gate at the inner end of said floor and a vertically movable dust guard carried by said gate, substantially as described.

21. The combination of the locomotive journal and journal box with a shelf or support arranged in the lower part thereof, and detachable therefrom, an end gate or plate pivoted on said shelf or support and adapted to be turned on its pivot to open the end of said box, a lubricator pan resting on said shelf and having a lubricator proper contacting with said journal, said pan and lubricator being removable from the box when said gate is open, substantially as described.

22. A locomotive journal box, in combination with a lubricator, a horizontal plate occupying the lower part of said box for supporting said lubricator, said horizontal plate being trunnioned at one end and adapted to be dropped for the removal of said lubricator, a spring pressed hinged gate closing the inner end of the box above the plate and below the journal and a dust guard section carried by said gate, substantially as described.

In testimony whereof, I have hereunto set my hand this 3rd day of October, A. D. 1903, in the presence of two witnesses.

CHARLES BREARLEY MOORE.

Witnesses:

C. G. HAWLEY,
JOHN H. GARNSEY.